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Small business recycling and buy-recycled programs in office buildings

Mellicent deJesus Fraticelli
San Jose State University

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**SMALL BUSINESS RECYCLING AND BUY-RECYCLED PROGRAMS IN
OFFICE BUILDINGS**

A Thesis

Presented To

The Faculty of the Department of Environmental Studies

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

By

Mellicent deJesus Fraticelli

December, 1998

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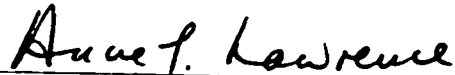
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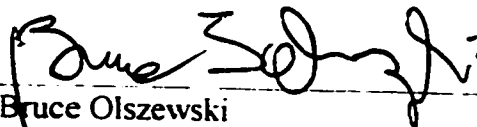
APPROVED FOR THE DEPARTMENT OF
ENVIRONMENTAL STUDIES



Dr. Anne T. Lawrence
Committee Chairperson
Department of Organizational Management



Dr. Celia Orona
Professor Emeritus



Mr. Bruce Olszewski
Department of Environmental Studies



Mr. David Skinner
City of San Jose, Office of Environmental Services

APPROVED FOR THE UNIVERSITY



ABSTRACT

SMALL BUSINESS RECYCLING AND BUY-RECYCLED PROGRAMS IN OFFICE BUILDINGS

by Mellicent deJesus Fraticelli

This thesis examined the recycling and buy recycled product activities of small businesses and property managers in multi-tenant office buildings. A multi-method research methodology employed both surveys and interviews to collect data from small businesses, property managers, janitorial services and recycling haulers. This study found that over three-quarters of businesses and property managers recycled and purchased recycled products.

The study found that the four groups surveyed had different concerns with respect to participation in a recycling program. The businesses were concerned about convenience. The property managers' were concerned about leasing contracts. The janitors were concerned about monetary compensation. And, the recycling haulers were concerned about efficient programs. All four groups expressed concern about the need for updated information regarding recycling and recycled products. The study suggests that effective public programs and policies to promote recycling must address the divergent concerns of each of these four groups.

ACKNOWLEDGMENTS

I started this program 6 1/2 years ago. My Mom and Dad were beginning to wonder if I would ever graduate. Well several things happened on the way to graduation. I married a wonderful person named Dave. And, last January we were blessed with a beautiful daughter named Katie. In between we adopted two wonderful dogs named Sammy and Emma.

I could not have completed this program without the support of several people. I would like to thank my husband, Dave for helping anyway and every way he could. Thanks to my family for sticking with me. Thanks to Robin Moore and David Skinner with the City of San Jose Environmental Services Department for providing much needed insight, contact lists, and use of their telephones to conduct surveys and set-up interviews. Special thanks go to Carol for helping me collect my data and Sam for taking care of Katie. Thanks to Rena, Nina, Erin and Brandolyn for keeping me focused and Cindy and Mary for much needed mental support. And, finally thanks to my committee members for encouraging and motivating me to pursue my topic.

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CHAPTER 1 INTRODUCTION

Problem Statement

The promotion of recycling as a solid waste solution has wrongfully led much of the public into believing that recycling is “collecting materials in a bin.” Recycling is actually a three-step, closed-loop process “by which materials otherwise destined for disposal are collected, reprocessed or manufactured, and reused” (US EPA 1989, 50). The success of each step is heavily dependent upon the other. Unfortunately, many recycling coordinators and consultants believe that the small business community is neither recycling nor buying products made from the recycled materials (Abrams 1997, Edwards 1997, Gertman 1997, Liberman 1997, Moore and Skinner 1997). This study explored the barriers to recycling programs and buying recycled products faced by the City of San Jose’s small businesses that reside in a multi-tenant office buildings.

Importance

In recent years, critics have openly contested that recycling operations do not make economic sense (Young and Sachs 1994). Deyle (1993) adds that recycling programs are heavily dependent upon subsidies. While many possible explanations exist, Biddle (1993) suggests that the lack of consumer demand for products with post-consumer recycled material is where the economics of recycling fails.

Recognizing the relationship between consumer demand for recycled products and the success of recycling programs is not a new idea. In 1990, Olszewski stated that:

Without new and expanded markets, the influx of materials will flood existing markets, prices will drop and some recycling programs will undoubtedly collapse in the face of unfavorable economics (Olszewski 1990, 102).

In 1992, Tietenberg recognized that consumers, as well as manufacturers and recycling haulers, played an important role on both the demand and supply side of the recycling market (Tietenberg 1992).

Young and Sachs (1994, 35) assert that the “problems with markets for secondary materials are largely a symptom of the promotion of recycling only as a waste management option rather than as a part of a broader materials policy.” Unfortunately, the word “recycling” has become synonymous only with the recovery of materials. Consumer demand for recycled products has not kept pace with the amount of materials recovered. Without strong consumer demand for post-consumer recycled products, manufacturers are not motivated to use recovered materials. And, without strong manufacturing demand for recovered materials, the value of recycled materials will fall. This study addressed the buy-recycled product activities of businesses because businesses are the largest consumer group (Keller 1994). Therefore, their purchasing decisions have a powerful impact on the success of recycling programs.

In the mid to late 1980's, the federal government and several state and local governments recognized the need to develop markets for recovered materials in conjunction with the increase in recycling collection programs. In 1989, California passed the Integrated Waste Management Act (AB939). AB939 defined a hierarchy for managing waste and a plan to develop recycling market zones. While AB939 created the

catalyst that increased participation in recycling, its promotion of recycled products has been less successful.

AB939 also required city and county governments to identify their solid waste stream. According to a report by Skinner (1995), San Jose's commercial sector generates 65% of the city's solid waste stream. Because businesses generate large portions of the waste stream, Lee, Young and Marans (1995) believe that businesses play an important role in promoting recycling behavior. However, developing effective business recycling programs is difficult due to their "nonhomogeneity" (Stevens and Kusterer 1995). The types and volumes of waste generated varies tremendously by business size, type of business and business location.

Looking only at the commercial sector, one might ask how much of the commercial waste is produced by small businesses and how much is produced by large businesses? While the exact figures are unknown, commercial solid waste managers and consultants estimate that 80% of the waste is generated by 20% of the commercial sector (Edwards 1997; Skinner 1996). This 20% figure represents larger businesses that control their own waste programs. It follows then that 20% of the commercial waste is generated by the remaining 80% of the commercial business population. This 80% population figure must be the smaller businesses.

What is the definition of a small business? The International Standards Organizations Technical Committee defines a small business as a company with fewer than 100 people. Using this figure, Wilson (1996) estimates that roughly 80% of the

companies in the world are small businesses. According to Mallard (1997), the City of San Jose Chamber of Commerce uses the same definition for a small business. This means that roughly 99% of the businesses in San Jose are small businesses (San Jose Metropolitan Chamber of Commerce 1992). These figures underscore the importance of small businesses as significant contributors to the success of recycling and buy-recycled products programs.

Research Objective

Hopper and Nielsen (1991, 199) stated that "we do not need to convince people that recycling (or buying recycled products) are good ideas, rather we need to persuade them to behave accordingly." The question is what factors determine why some small businesses recycle and buy-recycled products and why others do not? This research examined this question by addressing the following potential explanations:

1. Small businesses, commercial property managers, janitorial services and recycling haulers believe that recycling and buying recycled-content products have a negative impact on their net income.
2. Small businesses, commercial property managers, janitorial services and recycling haulers do not have the knowledge, experience or technical expertise to implement recycling and buy-recycled programs.
3. Small businesses, commercial property managers, janitorial services and recycling haulers view small business recycling programs as an inconvenience.
4. Small businesses are apathetic towards recycling because they personally generate very small amounts of waste.

Due to the large number and variety of small businesses in the City of San Jose, this study focused on small business recycling and buy-recycled programs found in multi-

tenant office buildings. An important factor in this choice is that multi-tenant office buildings are typically managed by a property manager. According to a GLS Research study (GLS Research 1996, 23), “businesses whose garbage and recycling activities are handled by property managers are less likely to recycle than those who directly handle their garbage and recycling activities.” This was supported by both the City of San Leandro’s Office Building Recycling Report (City of San Leandro Report 1995), and the Center for Development of Recycling’s Commercial Waste Assessment Final Report (Center for Development of Recycling 1996).

The City of San Leandro Report (1995) identified four major stakeholders to small business recycling programs in multi-tenant buildings. These four stakeholders are the small business (tenant), the property manager (landlord), the janitorial service and the recycling hauler. Again, this was supported by both the GLS Report (GLS Research 1996) and the Center for Development of Recycling’s Commercial Waste Assessment Final Report (Center for Development of Recycling 1996). Concerning buy-recycled program in a multi-tenant building, this researcher posits that the major stakeholders are the small business, the property manager and the janitorial service. This study focused on the recycling and buy-recycled activities, attitudes and opinions of these four business groups.

Methodology

This study employed the multi-method research methodology. The two types of data collection instruments used were the structured telephone survey and the semi-structured

personal interview. The structured telephone survey yielded nominal data and equal-appearing interval data. The semi-structured personal interview yielded nominal data and qualitative data.

The strengths of a telephone interview lie in testing hypotheses and confirming causal relationships between the variables. While a telephone survey has the potential to introduce interviewer bias, the interviewer can minimize this by strictly adhering to a structured script. Careful attention was also given to the length, flow, readability and aesthetic quality of the questionnaire (Gamba and Oskamp 1994). A total of 163 small business owners and/or managers in multi-tenant buildings that are managed by a property manager, commercial property managers, janitorial service managers and recycling hauler managers were randomly selected to participate in this study. These managers were asked a combination of the Yes/No questions and 3-point and 5-point Likert scale questions, ranging from strongly agree to strongly disagree.

The goal of the semi-structured personal interview is to develop relationships among the data using the principles of "grounded theory." Developed in the early 1960's by Glaser and Strauss grounded theory is an inductive process in which data are analyzed from the bottom up, leading to the discovery of common themes or theories (Strauss 1987). This part of the study involved personal interviews with 2 to 3 selected members of each of the four business groups. The participants were selected either by random or were referred to by associates. A semi-structured script containing open-ended questions

was used. The data were analyzed to generate potential hypotheses for the causative barriers to small business recycling and buy-recycled programs.

Finally, the strength of conducting more than one type of research methodology is to collect more than one type of data, thus providing a broader picture (Bryman 1988) of the barriers to small business recycling and buy-recycled programs in multi-tenant buildings.

Theoretical Perspective

In order to tackle this problem, the researcher first developed a theoretical framework with which to view the problem. This theoretical framework helped focus the research questions and analyze the data. In accordance with sociological theory, the theoretical framework chosen was the conflict theory.

Ritzer (1983, 241) stated that the basis of conflict theory is the idea that various positions or groups within society have different amounts of authority. Those with authority seek to maintain the status quo and those in subordinate positions wish to seek change. Thus a conflict always exists between the have's and the have-not's. The conflict need not be physically acted upon, but may be simple internalization of the expectations or roles that are then played out.

This researcher chose conflict theory because of the recycling roles, both real and conjured, played out by the large and the small business communities, the property management community, the janitorial service community, and the recycling hauler community. In general, because of their sheer size and economic powers, large businesses are expected, and do indeed, recycle more and buy more recycled-content

products than small businesses (Biddle 1993; Gallarotti 1995/96; Hansen 1996; Santa Clara Valley Manufacturing Group 1997; Smart 1992). On the flip side, small businesses do not generate the large volumes of waste and thus are not expected, to either recycle nor buy-recycled content products (City of San Leandro Report 1995). Thus, this research focused on identifying the barriers to small business recycling and buy-recycled programs in order to facilitate a change in both the attitudes and behaviors of those involved.

Summary

The small business community is a significant player to the success of the City of San Jose's ability to meet the 50% waste diversion goal mandated by AB939. This study explored the barriers to recycling and buy-recycled products faced by the small business community in multi-tenant buildings in the City of San Jose. A multi-method research methodology was used to investigate the problem. The multi-method research methodology employed two research instruments; the structured telephone survey method and the semi-structured personal interview. The multi-method research methodology provided a multi-dimensional examination of the barriers to recycling and buy-recycled products faced by the small business community in the City of San Jose.

CHAPTER 2 BACKGROUND - GARBAGE AND RECYCLING

Generality

Global industrialization has come at the high price of rapid consumption of the world's natural resources, loss of biodiversity, and increased economic gap between the resource-poor developed nations and the resource-rich less developed nations. A by-product of global industrialization is the ever increasing amount of garbage generated. Sustainable systems and methods are needed to stem, and possibly reverse, both the environmental and economic damages that currently plague the world.

Efficiency is a key component to the success of any business. Webster's dictionary defined efficiency as "the ability to produce a desired effect, product, etc. with a minimum of effort, expense, or waste" (Webster 1988, 433). In today's industrialized world, resources are collected, used, and then thrown away as garbage. In that process, resources and energy are expended and waste is created. Therefore, the mere presence of garbage illustrates our inefficient use of the resources.

Redefining garbage not as waste but as a highly refined resource will do much to achieve efficiency in the use of resources. Recycling and buy-recycled programs are two components of an efficient system that recovers and returns this highly refined resource into a useful product.

The exact figure about how much can be recycled is hotly debated. Differences in figures are due to the varying methods used to identify, calculate and report recyclable materials. Regardless, the facts are while the amount of solid waste generated continues

to rise, the number of landfills in the United States continues to decline. In 1988 there were over 8,000 landfills in the USA, by 1997 that number dropped to 2,514 (Glenn 1998, 33). Their declining numbers can be attributed to landfill closures due to unsanitary conditions, when their maximum capacity was reached, or the “not-in-my-back-yard” or NIMBY syndrome (Pfeffer 1992). The NIMBY syndrome often prevents the citing of new landfills due to “emotional and political syndromes” of neighboring individuals (Pfeffer 1992, 36).

To address the solid waste issue, a number of states mandated aggressive waste diversion goals. On September 29, 1989, California Governor Dukemajian signed the California Integrated Waste Management Act of 1989, known as AB939 (California Integrated Waste Management Board (CIWMB) 1989). The goals of AB939 were three-fold; develop a hierarchy to managing waste, reduce the waste entering landfills and incinerators, and to develop markets for the recyclable and reusable materials (CIWMB 1995). The hierarchy emphasized alternatives to landfilling the waste; which are in descending order of importance: reduce, reuse, recycle, compost, transform or incinerate, and finally landfill the waste.

AB939 also required each city and county to reduce all wastes entering landfills or transformation facilities an amount of 25% by 1995 and 50% by 2000. A report by the Planning and Services Agency of the Association of Bay Area Governments (1996) stated that all major cities and counties in California met their 25% reduction goal in 1995.

In the area of buy-recycled products, AB 939 recognized that developing markets for the recycled-content products is crucial to achieving the waste diversion goals set forth. In addition, the CIWMB established a buy-recycled products information resource center (CIWMB 1995). The types of information available include what products made with recycled or secondary materials are available, where to find vendors that sell these products, and how to set up a buy-recycled program for their business (CIWMB 1996). Despite the availability of these resources, the amount of recycled content products purchased has not kept pace with the materials recovered; thus contributing to the possibility of reduced incentive for recycling programs in the future.

Why Study San Jose's Small Business Community?

Located approximately 40 miles south of San Francisco, San Jose is home to 849,363 people (City of San Jose 1998) and 25,000 businesses (Moore 1997). Encompassing 175 square miles of land, San Jose is the largest city in the nine Bay Area Counties, the third largest city in California, and the 11th largest city in the country (City of San Jose 1998). Along with its growing population base, the amount of waste generated by San Jose continues to rise. In 1990, San Jose generated 1.18 million tons of waste and by 1995 that figure had increased to 1.22 million tons (City of San Jose Environmental Services Department 1995).

Billing itself as the "heart" of the Silicon Valley, San Jose is home to many innovative and leading-edge companies such as IBM, Adobe Systems and Cisco Systems. Thus, with only four fully permitted landfills with an estimated active lifespans ranging

between 29 and 47 years (County of Santa Clara 1995), it was not surprising that the City of San Jose (hereinafter called the “City”) had implemented some innovative and leading-edge solutions to address their solid waste problem.

One program implemented by the City was the residential Recycle Plus program. On July 1993, the city contracted with two waste hauling companies to collect both the garbage¹ and recyclable materials. The contract also required the hauler to develop markets for the recycled materials (City of San Jose 1993). Between July 1995 and June 1996, the haulers collected 82,083 tons of recyclable materials from nearly 80% of the single- and multi-family residents (City of San Jose Environmental Services Department 1995).

On the commercial side, the City implemented a non-exclusive franchise system to collect both garbage and recyclable materials. First, the City combined garbage and rubbish² into a single category called commercial solid waste (CSW). Each CSW hauler must obtain a franchise from the City. The franchised CSW haulers compete on a customer-by-customer basis. The City also created a non-exclusive franchise system of recycling haulers. The franchised recycling haulers also compete on a customer-by-customer basis. Thus, San Jose businesses can shop amongst the list of franchised CSW and recycling haulers. Second, the City created an AB939 fee charge to businesses and a CSW franchise fee charge to CSW haulers for every cubic yard of CSW generated. The

¹ The City of San Jose defined garbage as “wet waste” that includes foodstuff, toilet and tissue paper.

² The City of San Jose defined rubbish as “dry waste” that includes all waste except for those falling under the “garbage” category.

additional disposal fee was established to promote waste diversion programs, such as recycling. Despite these incentives, the City reported that 56% of the commercial waste stream in 1995 was still being landfilled and only 44% was recycled (Skinner 1996).

After the California Integrated Waste Management Board settled on standardized formulas and methods to calculate the diversion rates³, the City reported a combined residential and commercial diversion rate of 45% in 1995 (Skinner 1996). However, the 45% diversion was achieved primarily by the residential sector and large commercial generators (Skinner 1996). Thus, while the City exceeded the state's 25% diversion rate goal for 1995, cooperation from all "other" generators is crucial to meeting the 50% reduction goal for the year 2000. Specifically, the participation of small businesses is important for the City of San Jose.

To address the buy-recycled product issue, the City became a Recycling Market Development Zone⁴ in June 1993. Also, city businesses and residents have access to the Santa Clara County Recycling Hotline's Buy-recycled Database. This database is maintained and operated by the Center for Development of Recycling. Finally, the City continues to develop educational material and sponsor campaigns that promote the purchasing of recycled products.

³ Diversion rate is the percentage of the waste material that was diverted away from landfills or incinerators. For example, if the waste stream was 100 tons of which 50 tons was recycled, the diversion rate would be 50%.

⁴ The California Integrated Waste Management Board identified areas known as Market Development Zones to provide financial incentives for businesses to use secondary materials from the waste stream as feedstock for their manufacturing process.

Summary

Recycling is an essential component to controlling the rate and amount of landfill space, natural resources, and energy that are consumed. While the City has implemented an innovative recycling program for the residential sector and actively promoted recycling to its larger commercial generators, it has not focused much attention to the recycling or buy recycled product activities of its small business community. Given its existing recycling infrastructure and dedicated environmental staff, San Jose sits in a unique position to address the smaller waste generators.

CHAPTER 3 RELATED RESEARCH

When queried about the health of the environment, most people believe that humans are abusing it. According to Krause (1993), a 1991 Gallup poll reported that 75% of Americans were concerned about the environment's welfare and classified themselves as environmentalists. However, Krause (1993) suggests that the public's interest in environmental matters is without substance. Krause (1993) also found that people's concern for the environment was cyclical. This means that environmental issues must constantly compete with other social issues, such as welfare, crime, and job security, for people's limited attention. Stern, Dietz and Kalof (1995, 326) developed a three-tiered model to categorize people's environmental value orientation:

- a) social-altruistic value orientation: concern for the welfare of other humans,
- b) biospheric orientation: concern for non-human species or the biosphere,
- c) egoism: self-interest.

These value-orientations and the cyclical concern for the environment help to explain why people rate themselves as environmentalists and yet fail to take measures to protect the environment, such as recycling. Hopper and Nielsen (1991, 196) concluded that recycling is an "altruistic behavior since altruism is characterized by widespread approval but often limited participation." This is consistent with the findings of Vining and Ebro (1990). De Young (1989, 346) identified two types of recyclers and two types of non-recyclers:

- More positive recycler: Someone who is extremely dedicated conservationist.
- Less positive recycler: Someone who is recycling but does not understand why they are recycling.

More positive non-recycler: Someone who needs more education to change their attitude towards recycling.

Less positive non-recycler: Someone completely unaware of the issues surrounding recycling or reluctant to participate unless coerced or encouraged.

It may simply be that the public has learned the environmental language without actually understanding the concepts behind it (Scott and Willits 1994). As an example, most people are familiar with the recycling symbol of the three arrows chasing one another. To many people, the recycling arrow represents source separation and collection of the “waste” material. They believe that recycling is simply a means to reduce the amount of waste entering the landfills. Few people appear to understand that recycling is a closed-loop system and each arrow represents a distinct step in the recycling process. The first step is the source separation and diversion of the waste-material away from the landfill. The second step is the use of the recycled “waste” as input or raw material in the manufacture of a new product. The third step, which is often ignored, is the purchase of the recycled-content product or “buy-recycled” step.

Formulation of Hypotheses

This literature review yielded several studies that focused on both residential and large businesses recycling programs, but found only four studies (CIWMB 1996; Center for Development of Recycling 1996; GLS Research 1996; Lee, De Young and Marans 1995) that addressed the recycling behavior of large and small businesses. In addition, only two studies were found that focused on the recycling activities of small businesses

(Center for Development of Recycling 1996; City of San Leandro Report 1995). This literature review did not yield any studies that addressed both the recycling and the buy-recycled activities of small businesses. Also, this literature review did yield any studies that addressed small business recycling from the viewpoint of four major stakeholders: the small business, the property managers, the janitorial service, and the recycling hauler.

According to the literature review, four factors surfaced as potential barriers to small business recycling and buy-recycled programs. These four factors are: economic costs/benefits, lack knowledge or technical expertise, convenience, and apathy.

Economic Costs/Benefits

Gallarotti (1995/96) found that many large corporations have received large economic benefits from recycling programs. The benefits received include avoided disposal cost and revenue from the sale of recycled materials. Recycling haulers are attracted to large company recycling programs because they produce large volumes of recyclable materials. Also, many large corporations are responsible for their own solid waste services that allows them to implement a recycling program that best fit their needs.

While recycling is economically attractive for many large corporations, this is not the case for many small businesses (GLS Research 1996). Due to the small volumes of recyclable materials they generate and the low cost of landfill fees in California, (Deyle 1993) recycling haulers are often reluctant to provide them with a customized recycling program. Also, many small businesses do not control their solid waste services, making

it difficult for them to implement an effective recycling program (City of San Leandro Report 1995). Finally, many small businesses do not receive the benefit of avoided disposal cost because their solid waste service is often included in their commercial lease. Thus, recycling is currently an expensive choice for many small businesses (Biddle 1993; Deyle 1993).

In the area of "buy-recycled," Biddle (1993) suggests that lack of consumer demand for materials with post-consumer recycled content breaks down the economics of recycling. His study showed that consumers are not purchasing mass volumes of materials with post-consumer recycled materials products. Biddle (1993) identified three factors responsible for the lack of consumer demand for recycled products. These three factors are perceived higher costs for recycled materials over their virgin counterparts, perceived lower quality and availability of recycled products, and lack of manufacturer's commitment to the research and development of products with post-consumer recycled content.

Knowledge or Technical Expertise

Unlike large corporations, small businesses can not dedicate staff to research the environmental programs that best meet their needs. Without this information, small businesses often failed to implement effective recycling (GLS Research 1996) and buy-recycled programs.

Studies by Mohan-Neill (1995) and Callahan and Cassar (1995) found that small businesses often used informal and formal sources to collect information. Informal

sources of information include friends and family. Formal sources of information include business associates, competitors, and customers. Two forums used to gather information are business and trade organizations. A study by Kanter (1995) found that membership to a trade organization allowed for the exchange of information between its members. Tjosvald and Weicker (1993) found that members of business networks had "the ability to effectively influence each other."

Finally, it is common for people to transfer experience and behavior from one environment to another. This appears to be the case with recycling. The study by Lee, De Young and Marans (1995) concluded that companies whose employees had prior exposure or experience with recycling (particularly in the home) were more apt to recycle than those without prior recycling experience. Hamid and Cheng (1995) also found that prior experience or behavior had a direct and significant effect towards predicting anti-pollution behaviors in terms of both the intention and the actual behavior.

Convenience

Vining and Ebro (1990) and City of San Leandro Report (1995) found that non-recyclers were more concerned than recyclers about the convenience of recycling. For example, if recycling bins were not available in the break room, some employees would not recycle their aluminum cans. Or, if vendor information for secondary products was not in the office-supply catalogues, some employees would not buy recycled-content products. These scenarios imply that convenience could be a barrier towards small business recycling (or buy-recycled) programs. This conflicts with Lee, De Young and

Marans (1995) who concluded that convenience was not a required element toward implementing a recycling program.

Apathy

Hamid and Cheng (1995) found that apathy was a barrier towards developing anti-pollution behavior. Their study concluded that people became apathetic when they felt that the pollution problem was too big and any effort on their part would make little or no difference. Their study found that some people believed that the government and large businesses were solely responsible for cleaning up the environment. Scott and Willits (1994) observed that most people do not believe that they are the cause of environmental problems. Rather, they believe that most of the problem is the direct result of the activities of "others," such as large corporations, the government, and other countries. This feeling of apathy could present a barrier to small business recycling and buy-recycled programs.

Summary

The literature review yielded four factors that play a role in the success of recycling and buy-recycled product programs. These four factors are: economic costs/benefits, knowledge or technical expertise, convenience, and apathy. This study examined these four factors as potential barriers to recycling and buy-recycled programs for the small business community in the City of San Jose.

CHAPTER 4 METHODS

Overview

Many recycling coordinators and consultants in the San Francisco Bay Area believe that the small business community is neither recycling nor buying products made from the recycled materials (Gertman 1995, Abrams 1997, Edwards 1997, Liberman 1997, Moore and Skinner 1997). This study explored the barriers to recycling programs and buying recycled products faced by the City of San Jose's small business community that reside in multi-tenant office building.

Research Methodology

This research employed a multi-method research methodology. According to Brewer and Hunter (1989), knowledge of the weaknesses of individual research methods has led to the use of the multi-method research methodology. Its fundamental strategy is to "attack a research problem with an arsenal of methods that have non-overlapping weaknesses in addition to their complementary strengths" (Brewer and Hunter 1989, 17). Thus, a multi-method research yields multiple data sets.

In this study, the multi-method research has a quantitative research component, a qualitative research component, and a multi-method analysis component. Quantitative research is a deductive process where hypotheses are tested and causal relationships between variables are confirmed. Conversely, the goal of a qualitative research is

hypothesis development. Finally, the results of these two studies are “compared” to one another during the multi-method analysis phase.

The quantitative research component used a structured telephone survey instrument. Throughout this chapter the structured telephone survey is referred to as the “survey.” The survey was a structured script that defined all the possible responses. The range of responses included Yes/No, 3-point scale, and 5-point and 10-point Likert scales. Responses from the Yes/No questions yielded nominal level data. Responses from the 3-point scaling questions yielded ordinal data. Finally, responses from the 5-point and 10-point Likert scale questions yielded equal-appearing interval data. These ordinal, nominal and interval data were analyzed using descriptive and inferential statistics.

Note that in most academic disciplines, data from 5-point and 10-point Likert scale questions are treated as ordinal data. However, in the field of behavioral sciences, it is common to treat them as interval level data. Harris (1995, 16) described Likert scales as “equal-appearing interval data” because they fall somewhere between ordinal and interval level scales. While the distance between each level cannot be proven equal, Harris (1995, 16) stated that “there is a fairly close relationship between the spacing of the possible responses and the underlying attitudes they are attempting to measure.” Lee, De Young and Marans (1995) employed 5-point Likert scales to determine relationships and causality of recycling behavior in Taiwanese office environments using a number of inferential statistical tests such as ANOVA, MANOVA and LISREL. Defining the 5-

point and 10-point Likert scale data as equal-appearing interval data allowed this researcher to utilize standard statistical tests.

One-hundred and seventy subjects were randomly selected from four business groups. The selection process employed the stratified random sampling technique with non-replacement.

A drawback to a telephone survey is the potential for the interviewer to introduce personal bias. This bias can be reduced by strictly adhering to the structured script. Gamba and Oskamp (1994) stated that careful attention to the length, flow, readability and aesthetic quality of the survey minimizes ambiguity and multiple interpretations.

The qualitative component of this study used a semi-structured personal interview instrument. Throughout this chapter the semi-structured personal interview is referred to as the "interview." A minimum of 2 members from four business groups were randomly selected. The interview employed a semi-structured script that included both closed- and open-ended questions. The principles of grounded theory were then applied to the data. Grounded theory was developed in the early 1960s by Glaser and Strauss (Strauss 1987). Strauss (1987) defined grounded theory as an inductive process where data are analyzed from the bottom-up, leading to the discovery of common themes or theories.

Finally, the strength of a multi-method research study lies in the collection of more than one type of data, thus providing a broader and richer picture (Bryman 1988) of the problem. The results from the quantitative and qualitative components are "compared" to one another. Resultant data sets that converge are viewed with greater confidence

while divergent data sets signal the need for further research and to be “cautious in interpreting the significance of any one set of data” (Brewer and Hunter 1989, 17).

Multi-method studies are often conducted in a serial time frame, where the first study provides the impetus to the second study. A drawback to the serial approach is cost, both in terms of time and money. To minimize cost, this study was designed for parallel execution using two separate sample groups. The use of two separate sample groups insulated the two data sets from one another. Insulating the two data sets from each other ensured that the data collected from one study did not impact the data collected from the other study.

Sample Selection

The quantitative and the qualitative research methods required two distinctly different approaches to sample selection and to determining the appropriate sample size.

Quantitative Research Component

The quantitative research component used a stratified sampling technique to select the subjects. Harris (1995, 222) defined stratified sampling as “a selection procedure used when the population of interest is divided into mutually exclusive groups or strata.” The advantage of stratified random sampling is its ability to provide a higher degree of accuracy with smaller sample sizes (Harris 1995, 222).

Another reason to stratify the sample was to increase the study’s accuracy through the application of the factorial research design. Harris (1995, 53) described a factorial research design as a means of controlling extraneous variables, such as gender, age, and

business classification, by treating them as independent variables. A factorial research design is also used to analyze interactions between groups and within groups. According to Harris (1995, 54) the factorial research design looks at interactions between multiple sets of dependent and independent variables.

In this study, the independent variables were four mutually exclusive business groups. The City of San Leandro Report (1995) identified these four business groups. They are the small business manager or owner, the property manager, the janitorial service manager, and the recycling hauler manager. Subjects from these groups or strata were randomly selected using a random number generator.

This study looked at the interaction between dependent variables, such as knowledge about recycling, and the independent variables, represented by the four business groups. Thus, a comparison of each group's mean score determines the existence of variance between each group.

Next, the appropriate sample size for each group was selected. Table 4.1 shows how the sample sizes were determined. Given the wide range of population sizes, proportional sampling could not be applied. Therefore, the sample size technique selected was the "equal number of n's." The use of "equal number of n's" is appropriate when the purpose of the study is "not to draw inferences about the entire population but to compare the responses of the groups" (Harris 1995, 223).

Table 4.1 Desired Survey and Interview Sample Sizes

<u>Business Group</u>	<u>Group's Population</u>	<u>Desired Survey Sample Size</u>	<u>Minimum Interview Sample Size</u>
Small Business Manager/Owner	830	91	2
Property Manager/Owner	242	30	2
Janitorial Service Manager	311	30	2
Recycling Hauler Manager	12	12	2

According to Harris (1995, 229):

A sample size of 30 (randomly selected subjects) is the minimum sample size that approximates a normal distribution of a sample mean regardless whether the mean came from a population that is not itself normally distributed.

A normal distribution of the sample means allows for inferences to be made between groups and between a group and its population using inferential statistics.

As shown in Table 4.1, the sample sizes selected for the recycling hauler and the small business groups were not 30. Due to their small population size, the entire recycling hauler population was selected.

For the small business manager/owner group, a sample population size of 91 was chosen. The reason behind this choice was to allow for inferences to be made between the sample group and its population with an acceptable degree of confidence and accuracy customary among the fields of social and behavioral sciences. According to Grosof and Sardy (1985, 183):

A population whose size is between 500 and 1,000 requires a sample size of 91 to maintain a 95% confidence level (alpha) that the sample population selected represents the total population with a maximum of 10% sampling error.

Although a smaller population size could have been used, it would have resulted in a higher sampling error. While a larger population size yields a lower sampling error, it would have cost more in terms of time and money.

Subjects from three of the business groups were randomly selected from lists provided by the City of San Jose's Environmental Services Department and the Pacific Telephone Yellow Pages. Due to the small number of recycling haulers, the entire population was selected for participation in the study.

Qualitative Research Component

The qualitative research component of this study employed a semi-structured interview script that included both closed- and open-ended questions. Standard statistical tests cannot be applied to qualitative open-ended responses. Thus, the personal interview research methodology is not subject to the same sample selection and sample size rules as those for the quantitative survey. According to Orona (1997), the data collection process is terminated at saturation point or when patterns and themes emerge. A minimum of two subjects from each group were randomly selected from the lists identified above. Due to the small recycling hauler population, the subjects selected for the interview also completed a survey. The results were not impacted because the entire population participated in the study.

Data Collection

The quantitative research component used a structured telephone survey instrument and the qualitative research component used a semi-structured personal interview study

instrument. The two instruments required two distinctly different approaches to collecting data.

Structured Telephone Survey

A good telephone survey is short, easy to read and easy to follow. Because each group has a different perspective on the problem, it became evident during the survey development phase that using a single survey would violate these rules. Therefore, a unique version of the survey was needed to address issues specific to each group. Three versions of the survey instruments were developed; one for the small business manager/owner, one for the property manager and one for the janitorial service manager and the recycling hauler manager. Furthermore, each survey had two parts. Part A focused on company demographics and Part B focused on the manager's attitudes and opinions. The surveys were pre-tested in the field. Comments and suggestions received were reviewed for potential inclusion before the final surveys were administered to the general sample population. The scripts for the three surveys are included in Appendix A.

The surveys were conducted by first contacting the subject by phone. A standard greeting was used to state the purpose and goal of the research study and to solicit an agreement to participate in the study. Assurance of anonymity and confidentiality were conveyed to the subject. Once an agreement was received, the survey was conducted as per the structured script. The surveys took between 10 and 20 minutes to complete.

Unfortunately, the actual numbers of survey respondents were less than the desired sample sizes. See Table 4.2. Some of the reasons for non-participation included: no

time, lack of interest, the company has gone out-of-business, language barriers, and unreturned phone messages. As shown in Table 4.2, the response rate for the janitorial service group was much lower than the response rate from the other three groups. One possible reason for the lower janitorial service response rate could be fear of the immigration status of their employees. Table 4.2 also shows that the number of subjects contacted were greater than the initial desired sample sizes. The researcher increased the number of subjects randomly selected to obtain more respondents.

Time and money placed limits to the number of subjects successfully contacted. The number of property managers and janitorial service managers contacted could not be increased because both lists were completely exhausted. The aide of a professional survey firm could have potentially increased the number of respondents. As for the small business survey respondents, their numbers could have been increased given additional time and money to conduct more surveys.

Table 4.2 Actual Number of Survey and Interview Respondents

<u>Business Group</u>	<u>Group's Population</u>	<u>No. of Subjects Contacted</u>	<u>No. of Survey Respondents</u>	<u>Survey Response Rate</u>	<u>No. of Interviews</u>
SB	830	400	51	13%	3
PM	242	242	27	11%	2
JS	311	311	14	4.5%	2
RH	12	12	12	100%	3

Given the smaller number of survey respondents, the data collected were reviewed with prudence. For example, while inferences between the small business manager and all three other business groups were made with a high degree of confidence and accuracy,

inferences between the small business sample population and its actual population could not be made with the customary 95% level of confidence and accuracy. Furthermore, statistical inferences between the property manager and the janitorial service manager to any other business group called for discretion. Instead of representing the normal distribution of their respective populations, the respondents may represent extremists with a strong desire to express their views. The recycling hauler manager was the only business group with which inferences to any other group were made with a high degree of confidence and accuracy because the respondents represented the entire population of recycling haulers operating in the City of San Jose.

Semi-structured Personal Interview

For the personal interviews, each subject was first contacted by telephone. A standard greeting was used to state the purpose and the goal of the research and to solicit an agreement to participate in the study. The subject was informed that the interview would be taped. Once an agreement was received, an appointment was scheduled.

During the interview, the same greeting was again used to state the purpose and the goal of the research study. Again, the interviewer asked for permission to tape the interview. Taping the interview not only reduced the interview time, it helped maintain an active listening posture on the part of the interviewer. This active listening posture helped establish and maintain rapport, which are essential for a good interview. The interview took between 40 and 60 minutes to complete. The scripts for the three interviews are included in Appendix B.

Data Analysis

The telephone survey and the personal interview produced two different types of data sets. The telephone survey yielded ordinal, nominal and equal-appearing interval data. The personal interview yielded qualitative data. Both the telephone survey scripts and the personal interview scripts are attached as Appendixes A and B.

Each data set was first analyzed independently. The survey data were analyzed using both inferential and descriptive statistics. The principles of grounded theory were employed to analyze the interview data. Finally, the two data sets were “compared” to each other during the multi-method analysis phase.

Structured Telephone Survey

The structured telephone survey generated nominal, ordinal, and equal-appearing interval scale data; each requiring a different statistical analysis technique. The nominal and ordinal data were analyzed using descriptive statistics. Descriptive statistics were used to represent the data. In this study, graphs and charts were used to display the data. The equal-appearing interval data were analyzed using inferential statistics. Inferential statistics are used to look at relationships and explanations that apply to populations. In this study, the mean and standard deviation were calculated for the 5-point and 10-point equal-appearing interval data. A mean value of 1 indicates strong agreement with the question and a mean value of 5 indicates strong disagreement with the question. A mean value of 3 indicates neutrality to the question. All neutral responses are interpreted as a

non-barrier to the problem. The ANOVA test was then applied to determine any variance between the mean scores of each group.

ANOVA measures the variance between two or more mean scores. A calculated F-value less than the critical F-value indicates lack of variance among the mean scores. This infers a 95% probability that the groups represent the same population. Conversely, a calculated F-value greater than the critical F-value indicates variance among the mean scores. This infers a 95% probability that the groups do not represent the same population.

There are two limitations to the ANOVA test. ANOVA does not calculate the degree or the direction of variance between the mean scores. The value of this test is it determines if the business groups share similar or dissimilar views regarding the issues of recycling and buying recycled-content products. The results of the ANOVA test were presented in a tabular format. The Microsoft Excel Version 5.0 software program was used to perform the statistical tests.

Semi-Structured Personal Interview

The semi-structured personal interviews generated qualitative data. The data were analyzed using category development or “building grounded theory.” Grounded theory is an inductive process that identifies themes and develops categories that are linked or “grounded” from the data.

There are three steps towards developing grounded theory. These three steps are coding, memo writing and analysis. During the coding phase, Berg (1995) outlined seven

major elements with which to examine or code the data. Two of these elements, the “word” and the “theme” were used in this study. According to Berg (1995, 181):

The word is the smallest element or unit and generally results in a frequency distribution. The theme is a simple sentence, a string of words with a subject and a predicate.

The first step towards the development of grounded theory is coding. The coding process involves reviewing the data word by word, or line by line, to produce concepts or impressions of the data. The goal of coding is to raise the data to a “higher conceptual level” (Orona 1990, 1249). The second step towards the development of grounded theory is the writing of memos. Written memos are used to find patterns among the coded data. Orona stated that memos are used to document the beginnings of conceptualizing the data that emerge and thus provide a means of “tracking its levels from the raw data” (Orona 1990, 1250). From these memos, the researcher looks for “themes” to emerge. At this point the researcher often returns to the raw data, to the coded data and to the memos. This is the analysis phase. The themes that survived the scrutiny of all three levels rise to become the explanation or theory behind the problem.

Orona (1990, 1249) counseled that grounded theory is a “non-linear process.” One step does not automatically lead to next step. The three steps often intertwine, forcing the researcher to go back and forth between the three steps. Also, grounded theory development is a subjective process that requires interpretive skills. This is especially true during the memo writing step when the coded data are “interpreted” by the researcher. Any prior experience with the problem can be both a benefit and a hindrance.

In this study, the benefit came in knowing and understanding the language of recycling and buying recycled products. The hindrance came in the potential to read more into each word or sentence than what was really there. Thus, constant checking and cross-checking of the raw data, the coded data and the memos were performed to ensure that all emergent themes came from or were grounded in the data.

Multi-Method Analysis

Finally, a multi-method research study allows the results of two or more data sets to be “compared” to each other for consistency (Bryman 1988). Bryman (1988) stated that the strengths of a multi-method research study are its ability to offer greater confidence when the results of more than one type of data concur and to provide a broader view of the problem. If the two data sets diverge, Bryman (1988) suggests that it serves as the launch point for future studies. Again, keep in mind that the two data sets are distinctly different. Bryman (1988) commented that only a descriptive analysis can be performed because no inferential statistical tests exist which can determine variances between the quantitative and the qualitative data sets. Thus, any descriptive analyses between the two data sets are merely hypotheses which only further research can continue to confirm or reject.

Summary

This chapter introduced the multi-method research strategy employed in the study. The multi-method allows multiple sets of data to be collected, analyzed, and compared to one another. The two data collection instruments used were the structured telephone

survey and the semi-structured personal interviews. The resultant data sets required two distinctly different analysis techniques. The survey data were analyzed using descriptive and inferential statistics. The interview data were analyzed using the grounded theory. Chapter 5 covers the survey data analysis and chapter 6 covers the interview data analysis. Chapter 7 presents the multi-method analysis and conclusions, and Chapter 8 presents recommendation regarding the barriers faced by the small business community in the City of San Jose.

CHAPTER 5 ANALYSIS OF TELEPHONE SURVEY DATA

Chapter 4 described the methodology used to collect both the survey and the interview data. This chapter presents the results of the telephone survey data. Chapter 6 covers the results of the personal interview data.

Four business groups were surveyed. The four groups surveyed were: small businesses in multi-tenant buildings, property manager, janitorial service, and recycling hauler. The survey investigated the following issues regarding recycling and buying recycled product programs: cost/benefit, the lack of knowledge or technical expertise, convenience, and apathy.

The survey was divided into two parts. Part A focused on company demographics that yielded nominal and ordinal data. Responses ranged from simple yes/no responses, fixed short responses, and open-ended short-phrase responses. These data were analyzed using descriptive statistics, which involved organizing the data in tables and graphs. Part B measured attitudes and opinions that yielded equal-appearing interval data. The response mechanism used was the 5-point Likert scale, ranging from strongly agree to strongly disagree. These data were analyzed using an inferential statistical test called ANOVA to determine variance between group responses. The scripts for the three surveys are included in Appendix A.

The survey was pre-tested in May 1997. After some corrections, 104 surveys were conducted between June 1997 and August 1997. The surveys were conducted via

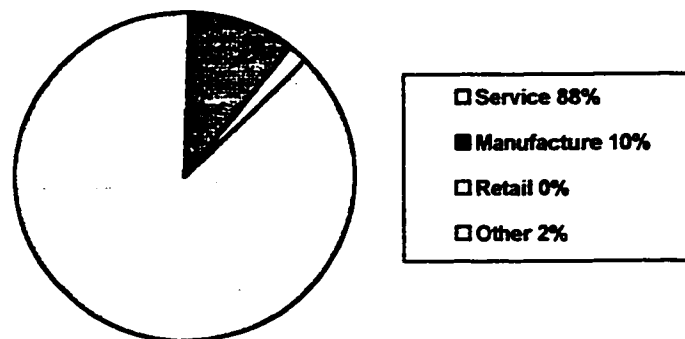
telephone and mail. As shown in Table 5.1, the number of surveys collected was less than the number of surveys originally desired.

Table 5.1 Number of Survey Respondents By Group

<u>Small Business</u>	<u>Property Manager</u>	<u>Janitorial Service</u>	<u>Recycling Hauler</u>	<u>Total</u>
<u>(SB)</u>	<u>(PM)</u>	<u>(JS)</u>	<u>(RH)</u>	
51	27	14	12	104

The makeup of the small businesses surveyed is shown in the chart below.

Figure 1.--Makeup of Small Businesses Surveye



The kind of services offered by the small business respondents were:

- Law firms
- Consultants
- Travel
- CPA
- Engineering
- Educational Services
- Real Estate
- Financial Services
- Architecture Design

Current Activities

In order to determine the barriers to recycling and buying recycled products, it was necessary to first determine the current activities of the small businesses, property managers and janitorial service groups. Their responses are shown in Tables 5.2 and 5.3.

According to the data, 74% of the small business and 85% of the property manager groups are currently recycling. Of those recycling, 58% of the small businesses and 65% of the property managers indicated that their recycling programs were centralized or building-wide programs that included the assistance of the janitorial service community.

Next, the small business and property managers were asked if their employees or tenants had expressed their desire for a recycling program and, if so, had this influenced their decision. Unfortunately, these questions could not be answered substantively because a large percentage of respondents did not respond. Possible explanations for the lack of response may lie in the placement of the questions within the script or the simply the respondent's misunderstanding of both questions. Since many of the surveys were conducted by mail, these questions were subject to the respondent's interpretation.

The next question analyzed was the involvement of the janitorial service community in recycling programs. 92% of the janitorial services indicated that they collect and transport recyclable materials to a centralized recycling location. However, 43% of the janitorial service group stated that they provided recycling assistance to clients without the benefit of a contract.

Next, the small business group was asked to identify the makeup of their waste stream. Table 5.3 shows their responses. Table 5.3 shows that white and mixed papers represent the majority of the waste stream. As for OCC⁵, only 30% of the respondents indicated that it represented between 2% and 20% of their waste stream. Given the types of businesses surveyed, the waste characterization estimates appeared reasonable.

Next, the small business and property managers were asked to identify the makeup of the materials they recycled. Chart 2 shows their responses. Considering the waste characterization data collected, it was not surprising that the two most common materials recycled were white paper and mixed paper. However, it was surprising that OCC and aluminum cans were recycled even though the quantities generated were small. One possible explanation is the application of home recycling activities to the office.

The small business and property managers were then asked about their current buy-recycled product activities. Their responses are shown in Tables 5.4 and Chart 3.

According to the data, 79% of the small businesses and 83% of the property managers purchased recycled products. Of those that bought recycled products, 55% of the small businesses and 45% of the property managers gave an altruistic response when asked why they purchased recycled products. Given the types of small businesses surveyed (e.g., law firms, accounting firms, consultants, etc.), and paper products

⁵ OCC = old corrugated cardboard

Table 5.2 Baseline Activities of Small Business, Property Managers and Janitorial Service Communities

<u>Question</u>	<u>SB</u> n=50	<u>PM</u> n=27	<u>JS</u>
Are you/tenants responsible for the waste or is it included in the lease?			
Responsible for own waste	10%	4%	
Waste included in lease	90%	96%	
Does your lease include a "pass-through" ⁶ clause?	n=45	n=21	
Yes	27%	81%	
No	15%	19%	
Don't Know	58%	0%	
Does your company/tenants recycle?	n=51	n=27	
Yes	74%	85%	
No	26%	15%	
Why does your company/tenants recycle? (Mark one item)	n=34	n=22	
Reduce garbage costs	9%	46%	
Right thing to do	53%	36%	
Reduce garbage cost and right thing to do	15%	9%	
Program already in place	20%	n/a	
Don't Know	3%	0%	
Reduce costs and tenants want program	n/a	9%	
Mark the item that best describes your recycling program.	n=44	n=20	
Materials brought home or recycle center	20%	25%	
Individual business program	20%	10%	
Central program w/janitor assistance	58%	65%	
Other	2%	0%	
If not recycling, have employees/tenants asked for a recycling program?	n=13	n=4	
Yes	31%	0%	
No	0%	0%	
No response	69%	100%	
If recycling, did employees/tenants ask for a recycling program?	n=38	n=23	
Yes	3%	26%	
No	3%	8%	
No response	94%	66%	

⁶ The "pass-through" clause of a leasing contract states that any additional cost for building operation and maintenance not previously included in the lease will be billed to the tenant. These costs include, but is not limited to, garbage collection, water, and electricity charges.

Table 5.2 Baseline Activities of Small Business, Property Managers and Janitorial Service Communities (continued)

Janitorial Service Only: Do you normally contract with individual businesses or with the property manager?	n=14
Individual Businesses	21%
Property Manager	58%
Both	21%
Janitorial Service Only: Do you transport the materials from each business to a central location area?	n=13
Collect and transport materials	92%
Don't Know	8%
Janitorial Service Only: Does your service contract include language about providing recycling collection services?	n=13
Y	57%
N	43%

Table 5.3 Small Business Waste Characterization

<u>Waste Materials</u> <u>Generated</u>	<u>% of Respondents</u>	<u>Estimated % of the Waste</u> <u>Stream</u>
• white paper ⁷	84%	Between 60% -- 90%
• mixed paper	70%	Between 20% -- 80%
• aluminum	50%	Between 1% -- 20%
• glass	28%	Between 1% -- 5%
• occ	30%	Between 2% -- 20%
• other	27%	Between 1% -- 5%

are used extensively by this group, it was reasonable that a large percentage purchased recycled paper products (e.g., computer/copier paper, file folders). However, only 77% of the small businesses and 69% of the property managers that stated they purchased recycled products actually identified specific recycled products that were purchased.

⁷ white = high-grade white copier or computer paper; mixed = colored paper, envelopes, junk mail; glass = all colors of glass; aluminum cans; occ = old corrugated cardboard; other = copier/printer toner, metals, newspaper, styrofoam/packing material.

Figure 2.-- Types of Materials Recycled

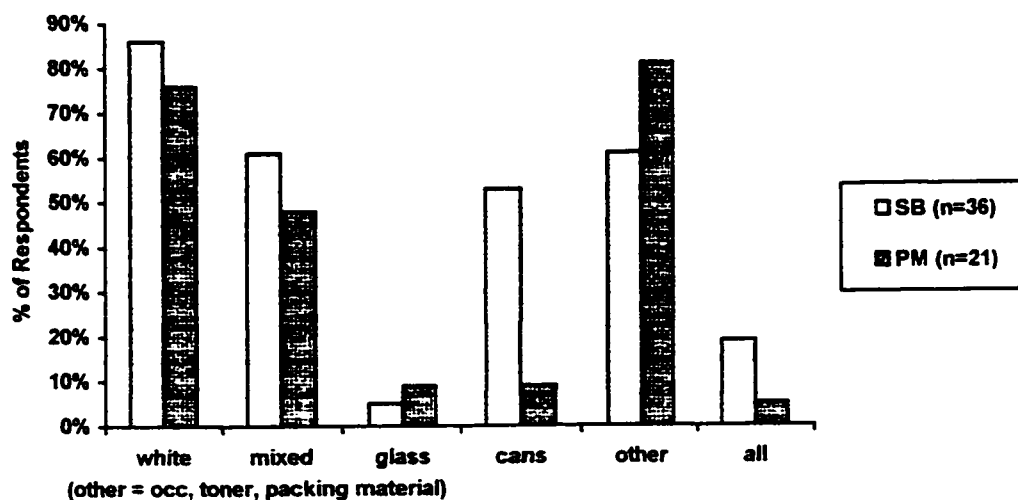


Table 5.4 Small Business and Property Manager Buy-recycled products

<u>Question</u>	<u>SB</u>	<u>PM</u>
Does your company buy-recycled products?	n=49	n=23
Y	79%	83%
N	21%	17%
Why does your company buy-recycled products?	n=34	n=18
Reduce costs	15%	33%
Right thing to do	55%	45%
Reduce cost and right thing to do	15%	11%
Other (company policy, try it)	15%	11%

It is possible that many respondents did not respond because the question was too cumbersome. It is also possible that some respondents may have confused the recycling symbol present in many consumer products as a recycled product as opposed to a product that is recyclable. Unfortunately, the study did not address the criterion used by

Figure 3.— Recycled Products Purchased



respondents to define recycled products. As stated earlier, many of the surveys were conducted by mail, which moves control of the survey away from the researcher to the respondent.

Analysis of Variance Between Groups

Once the baseline activities were established, the data analysis focused on the following issues regarding recycling and buying recycled products: cost/benefit, knowledge or technical expertise, convenience and apathy.

Economic Cost/Benefit

Recycling and buying recycled product affects a company's net income both in terms of time and money. The specific cost/benefit issues addressed were:

- Locked bins
- Training
- Lack of space
- Initial start-up cost
- Janitorial time
- Monthly service charge
- Single centralized program
- Compensation for recyclable
- Recycled products are more expensive

Tables 5.5 and 5.6 present each business group's mean score and the calculated ANOVA value. In questions B6.1 and B6.7, the calculated F-values were more than the F-critical value, indicating a variance between the group's mean score. In question B6.1, the higher mean scores of the small business and property manager indicate that they do not believe that the initial hardware cost prevents them from starting up a recycling program. As indicated by the lower mean scores, the reverse is true for the janitorial service and recycling hauler. Recycling programs require hardware to house and collect the recyclable materials. The types of hardware include bins ranging in size from small waste basket size bins for individual offices/cubicles to 30 gallon, 60 gallon, or larger size containers for the printer/copy rooms and cafeterias. The cost for these bins is usually born by either the small business or property manager groups. According to the data, the cost for this hardware was not a barrier for the small business or property manager groups. A possible explanation may be because the price and quantity of bins required are small enough to fit most budgets.

In addition, large indoor and/or outdoor containers are needed to house the materials collected amongst all the tenants. The recycling hauler is usually responsible for providing these larger containers. Given the smaller amount of recyclable materials generated by the small businesses, the recycling hauler group may feel that they would receive a better return on their investment if these bins were placed in the location of the large generators of recyclable materials.

For the janitorial staff, their hardware requirements may include specialized containers that allow for the simultaneous collection of waste and recyclable materials. A possible explanation for the janitorial service group's response may be due to their lack of monetary compensation not only for their collection services but for their hardware expenditure as well.

In question B6.7, the higher mean scores of the property manager and recycling hauler indicate that the monthly recycling fee does not hinder small businesses from recycling. For the property managers, their response is consistent with their willingness to pay for a recycling service as long as the savings realized from waste avoidance activities exceed the recycling fees. As indicated by the lower mean scores, the reverse was true for the small business and the janitorial service. Given that these two groups are not directly involved with the waste collection services, it was reasonable that they did not recognize the financial benefit received from waste avoidance activities.

For all other questions, the calculated F-values were less than the F-critical value, indicating a lack of variance among the group's mean score. For example, in question B6.3, all four groups did not think that the cost of training employees how to recycle prevents them from recycling. In question B6.4 all four groups confirmed that a single, centralized, building-wide program is the most efficient type of program for small businesses in a multi-tenant building.

Keep in mind that the lack of variance among the mean scores merely indicates that there is a 95% probability that the groups may represent the same population. This study

did not calculate the degree or the direction of variance between the mean scores. For example, the ANOVA results of question B6.9 indicate that the four groups appear to represent the same population. However, a closer review of the mean scores shows that the janitorial service community disagreed with the other three groups. Additional statistical tests could potentially determine the degree and direction of variance between the mean scores.

Another interesting thing about the janitorial response to question B6.9 is that despite their concerns, 92% of the them provided recycling services to clients that requested their services. Furthermore, 43% of them provided the service without the benefit of a contract.

In question B6.16, the small business, property manager and janitorial service believed that lack of physical space for the recycling bins was a barrier to recycling programs. It was reasonable that the small business and property manager groups believe that space for recycling bins was a barrier to recycling programs because they are the parties involved with allocating valuable space to house the recycling bins. It was also reasonable that the janitorial service remained neutral to this issue because they do not play a role in the allocation of space for the recycling bins. Finally, the recycling hauler's concern may stem from obtaining bin locations that provide the easiest access for their collection crew.

Table 5.5 Economic Cost/Benefit - All Groups

<u>Question No.</u>	<u>Questions Regarding Recycling Programs</u>				
B6.1	Initial hardware costs prevent us from starting up a recycling program.				
B6.3	The company cannot afford to train employees how to recycle.				
B6.4	Business in a multi-tenant building benefits from a centralized program.				
B6.5	Locked bins reduced contamination and theft of recyclable materials.				
B6.7	Monthly collection fee hinders a recycling program.				
B6.9	Additional janitorial time to collect recyclable material is minimal.				
B6.16	Lack of bin space hinders recycling programs.				
B11.6	Recycling haulers should pay customers for materials collected.				
B11.7	Recycling haulers should charge customers for their recycling services.				
<u>Question No.</u>	<u>Group's Mean Score</u>				<u>Calculated-F-value</u>
	<u>SB</u>	<u>PM</u>	<u>JS</u>	<u>RH</u>	
B6.1	3.059	3.654	2.500	1.879	3.333
B6.3	3.816	3.231	3.000	3.600	2.219
B6.4	1.388	1.520	0.401	1.538	2.036
B6.5	2.277	1.731	1.571	1.727	2.216
B6.7	2.694	3.231	2.000	3.125	3.147
B6.9	2.375	2.417	3.231	2.667	1.617
B6.16	3.100	2.769	3.000	2.500	0.755
B11.6	2.686	2.800	2.364	3.000	0.553
B11.7	3.270	3.160	3.182	2.200	1.732
F-critical=2.7, p=0.05 df=3,90 (mean of 1 = strong agreement, mean of 5 = strong disagreement, mean of 3 = neutrality)					

Table 5.6 lists additional questions and responses that applied only to the small business and the property managers. In both cases, the calculated F-values were less than the F-critical value, indicating a lack of variance among the group's mean score. In

question B11.11, both the small business and the property manager groups agreed that businesses should be charged waste disposal fees based upon the volume generated. This indicates that both groups appear to have an understanding of the financial benefits of waste avoidance activities, such as recycling. At first glance, the responses given by the property manager group regarding the monthly recycling fee question (B11.11) appeared to conflict with their response to the question regarding recycling haulers charging for collection service (B6.7). However, it is possible that even though the small business group understands that collecting recyclable materials has hardware and labor costs, they may still be unwilling to pay for the actual service due to their belief in the inflated value of recycled materials.

In question B7.1, both groups indicated that cost and not quality drives their selection for consumer products. However, because recycled products are believed to cost more than virgin products and product cost was an important criterion it was

Table 5.6 Economic Cost/Benefit - Questions For Small Business and Property Manager

<u>Question No.</u>	<u>Question Regarding Recycling Programs</u>		
B11.11	Businesses should be charged disposal rates based upon their volume.		
	<u>Questions Regarding Buy-Recycled Products Programs</u>		
B7.1	If two products have the same quality, my company will purchase the least expensive product.		
<u>Group's Mean Score</u>			
<u>Question No.</u>	<u>SB</u>	<u>PM</u>	<u>Calculated F-value</u>
B11.11	2.000	2.053	0.041
B7.1	1.780	2.000	1.035
F-critical=4.0, p=0.05, df=1,60 (mean of 1 = strong agreement, mean of 5 = strong disagreement, mean of 3 = neutrality)			

interesting that 79% of the small business and 83% of the property manager groups surveyed purchased recycled products. A potential explanation may be that the cost differential between the recycled and virgin products were small enough to allow for a recycled product purchasing preference. Unfortunately, the concept of a product cost differential was not addressed in this study.

Finally, this study investigated the effects of the current waste and recycling fees assessed by the City of San Jose. The questions and results are presented in Table 5.7.

It appears that when the City of San Jose assesses these fees to promote source reduction and recycling activities as part of the refuse bill, it does not attract much notice. Yet, when asked to pay directly for a recycling service, 37% of the small businesses and 36% of the property managers were unwilling to pay for the service. This was not surprising because the fee was often a fraction of the cost for a recycling service. However, the study also showed that over 50% of the small businesses and the property managers were willing to pay a small monthly charge for a recycling service. This should be of interest to recycling program designers and policy makers.

Finally, the study also showed that 20% of the property managers understood that recycling represented an economic benefit when the cost to recycle was less than the cost for refuse collection. However, this 20% figure appeared low considering that 46% of the property managers indicated that they recycled to reduce their disposal cost. This

Table 5.7 Small Business and Property Manager Buy-recycled products

	<u>SB</u> n=49	<u>PM</u> n=24
Did you know that as of July 1996, all businesses in San Jose are paying a source reduction and recycling fee of \$1.77 per cubic yard?		
Yes	4%	29%
No	96%	71%
Did you know that as of July 1996, all commercial solid waste collectors pay a franchise fee of \$1.64 per cubic yard collected?	n=37	n=10
Yes	3%	0%
No	97%	100%
If you had to pay for your recycling services, what is the average amount you would be willing to pay per month?	n=48	n=25
Less than \$10	17%	8%
Between \$10 and \$20	33%	8%
More than \$20	10%	20%
None	37%	36%
Anything, as long as it reduced garbage costs	0%	20%
Don't Know	2%	8%

figure was also inconsistent with the results of question B6.7 which indicated that recycling fees do not prevent the property manager from recycling. It is possible that the survey script may have biased a number of respondents to select the response option "none."

Knowledge or Technical Expertise

There are a number of sources from which to gather or receive information regarding how and why to recycle or buy-recycled products. These sources include local government agencies and refuse/recycling haulers. Other potential sources include the

home, prior jobs and business or trade organizations. Table 5.8 shows the questions and responses given to the small business and property manager groups.

Table 5.8 Knowledge or Technical Expertise - Small Business, Property Manager and Janitorial Service

<u>Question</u>	<u>SB</u> n=49	<u>PM</u> n=27	<u>JS</u> n=14
Does your company belong to trade/business organization?			
Yes	45%	74%	36%
No	49%	22%	57%
Don't Know	6%	4%	7%
Do you personally recycle at home?	n=51	n=27	
Yes	92%	96%	
No	8%	4%	

Respondents who recycled at home were then asked to identify how often they recycled the materials listed in Chart 4. Tables 5.9 and 5.10 display the percentage of the small business and property manager groups that recycle at home and at work.

While the study does not confirm that recycling at home played a role towards promoting recycling at work, it does indicate that a large majority of the small businesses and property managers recycle both at work and at home.

Another question investigated was the concept of recycling as a closed-loop market system. A key component of a successful recycling program is its ability to offer the recycled materials as a raw commodity to manufacturers that use recycled materials. The manufacturers, in turn, are driven to produce recycled products based upon consumer demand. This study looked at the closed-loop market relationship between recycling and

Figure 4.--Materials Recycled At Home

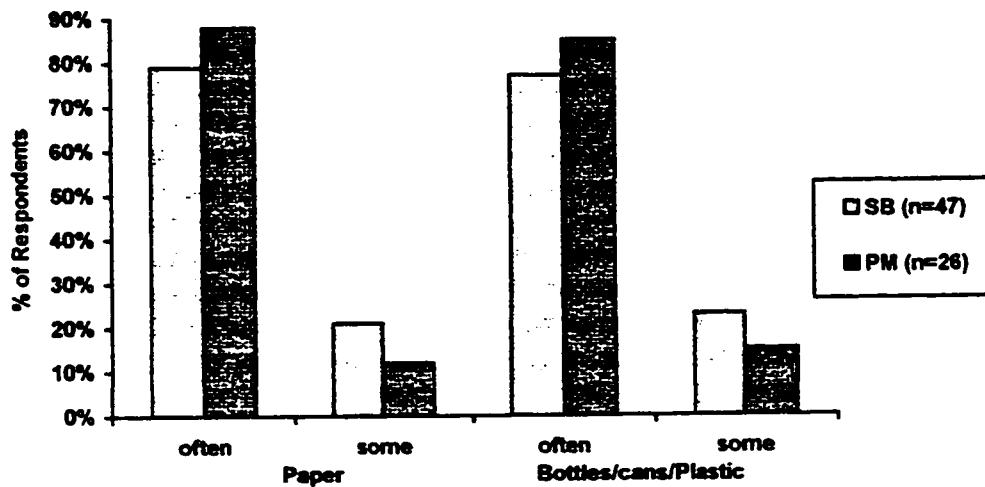


Table 5.9 Small Business Recycling At Home Vs. At Work

<i>Recycle at home? (n=51)</i>			
		<u>Y</u>	<u>N</u>
Recycle at work? (n=51)	<u>Y</u>	71%	4%
	<u>N</u>	22%	3%

Table 5.10 Property Manager Recycling At Home Vs. At Work

<i>Recycle at home? (n=51)</i>			
		<u>Y</u>	<u>N</u>
Recycle at work? (n=51)	<u>Y</u>	81%	4%
	<u>N</u>	15%	no response

buying recycled products by small business managers and property managers. Table 5.11 presents the question and the response. The calculated F-value was less than the critical F-value. This indicates that both the small business and property manager groups agree with the theory that a closed-loop relationship exists between recycling and buying

recycled products. The importance of this relationship is to link the demand for recycled products with the supply of recycled materials collected. This result is consistent with the large percentage of small business (55%) and property manager (45%) groups that gave an altruistic reason for buying recycled products.

Table 5.11 Knowledge or Technical Expertise - Small Business and Property Manager

<u>Question No.</u>		<u>Question</u> <u>Buy-Recycled Products Program</u>	
B7.6	Buying recycled products is important because it is part of the recycling loop.		
<u>Group's Mean Score</u>			
<u>Question No.</u>	<u>SB</u>	<u>PM</u>	<u>Calculated F-value</u>
B7.6	1.620	1.875	2.343
F-critical=3.970, p=0.05, df=3,95 (mean of 1 = strong agreement, mean of 5 = strong disagreement, mean of 3 = neutrality)			

Table 5.12 displays the results of other questions presented to the small business, property manager, and janitorial service groups to address their knowledge and technical expertise regarding recycling and recycled products. The calculated F-value was less than the F-critical value for questions B7.2, B7.4 and B11.5. In B7.2, all three business groups indicated that more information about where to buy-recycled products is necessary. In question B7.4, all groups believed that the quality of recycled products was lower than their virgin counterpart. This result is consistent with the general public's perception regarding the lower quality of recycled products. Finally, in question B11.5, all three groups indicated that the activities of their competitors affect their own business

activities. The importance of this question lies in using competition amongst peers as a motivator to promote recycling and buying recycled products.

In question B11.1, the calculated F-value was more than the F-critical value, indicating disagreement among the three groups. The small business and the property manager groups indicated that membership to business or trade organizations has helped their own businesses; whereas, the janitorial service group indicated just the opposite. A

Table 5.12 Knowledge or Technical Expertise - Questions For Small Business, Property Manager and Janitorial Service Manager

<u>Question No.</u>		<u>Buy-Recycled Products Program</u>		
B7.2	More information about where to buy-recycled products should be made available.			
B7.4	Products made from recycled materials have a higher quality than those made from new materials.			
		<u>Recycling and Buying Recycled Products Programs</u>		
B11.1	Business or trade associations have helped my business.			
B11.5	The activities of our competitors play an important role in our business activities.			
<u>Group's Mean Score</u>				
<u>Question No.</u>	<u>SB</u>	<u>PM</u>	<u>JS</u>	<u>Calculated F-value</u>
B7.2	1.860	1.792	2.231	1.242
B7.4	3.280	3.478	3.545	1.261
B11.1	2.651	2.261	3.454	3.965
B11.5	2.673	2.480	2.333	0.441
F-critical=3.106, p=0.05, df=2,83 (mean of 1 = strong agreement, mean of 5 = strong disagreement, mean of 3 = neutrality)				

possible explanation may be due to the larger number of professional organizations available to the small business and property manager groups than for the janitorial

service group. Therefore, the janitorial service group may lack experience and knowledge about the benefits of belonging to professional organizations. The importance of this question lies in utilizing professional organizations as a forum from which to educate members about recycling and buying recycled products.

Perceived Inconvenience

People have become accustomed to throwing away garbage because the waste bins are conveniently located and require no prior sorting or processing on their part. Then, the janitors transport the waste materials to the larger collection bins, which are then picked up and removed by the waste hauler. The goal of a good recycling program is mimic the waste collection program; in essence to be as convenient as the waste program.

Table 5.13 investigated the questions of convenience and source separating recyclable materials. The calculated F-value for question B6.17 was less than the F-critical value. This indicates that both the small business and property manager appear to agree that collecting mixed recyclable materials make it easier for small businesses to recycle. In question B12.4, the F-value was more than the F-critical value. This indicates that the distance between the work area and the recycling bin was more important to the small business group than to the property manager group.

Table 5.13 Perceived Convenience - Questions For Small Business and Property Manager

<u>Question No.</u>		<u>Recycling Program</u>	
B6.17		Collecting mixed materials (e.g., mixed paper) makes it easier for small businesses to recycle.	
B12.4		Distance between the work areas and the recycling bins.	
<u>Question No.</u>		<u>Group's Mean Score</u>	
<u>SB</u>	<u>PM</u>	<u>Calculated F-value</u>	
B6.17	1.848	1.750	0.1680
B12.4	1.9333	2.769	5.955
F-critical=3.98, p=0.05, df=1,69 (mean of 1 = strong agreement, mean of 5 = strong disagreement, mean of 3 = neutrality)			

Apathy

The last topic investigated dealt with the issue of apathy towards the problem of waste. While each individual small business generates much less waste than larger corporations, small businesses represent over 98% of the business community in the City of San Jose. In Table 5.14, small business and property managers were asked to address this issue.

The calculated F-value was less than the F-critical value. This indicates that both the small business and property manager groups do not believe that recycling should target only large businesses and government agencies. This finding is important because both groups indicated awareness that their recycling efforts are contributing towards addressing the solid waste problem.

Unfortunately, this study did not address the idea of apathy as a barrier to buying recycled products. Therefore, no conclusions could be drawn.

Table 5.14 Minimal Impact - Question For Small Business and Property Manager

<u>Question No.</u>	<u>Topic of Question</u>	
B6.19	<u><i>Recycling Program</i></u> The recycling focus should be towards large businesses and governments because they generate more waste.	
<u>Group's Mean Score</u>		
<u>Question No.</u>	<u>SB</u> <u>PM</u>	<u>Calculated F-value</u>
B6.19	3.340 3.538	0.367
F-critical=3.97, p=0.05, df=1,74 (mean of 1 = strong agreement, mean of 5 = strong disagreement, mean of 3 = neutrality)		

Analysis of Variance Between Recyclers and Non-Recyclers

Due to the unexpectedly high percentage of small businesses and property managers surveyed that recycled and purchased recycled products, analyses of variance were conducted between the small business recyclers and non-recyclers and between the property managers that provided and did not provide recycling programs to their tenants.

Table 5.15 presents the results of the analysis between the small business recyclers and non-recyclers. In all four cases, the calculated F-values were less than the F-critical value. This indicated a lack of difference between the attitudes of the small business recyclers and non-recyclers.

Table 5.16 presents the results of the property managers that provided recycling programs to their tenants and those that did not provide recycling programs for their tenants. In all five cases, the calculated F-values were less than the F-critical value. The lack of variance between recyclers and non-recyclers appears to indicate that property managers surveyed represented the same population. However, a closer examination of

Table 5.15 Analysis of the Small Business Recyclers and Non-Recyclers

<u>Question No.</u>	<u>Topic of Question</u>		
<u><i>Recycling Program</i></u>			
A13	Do you have a recycling program?		
B6.4	Businesses in a multi-tenant building would benefit more if they collected their materials together in one central location.		
B6.17	Collecting mixed materials (e.g. mixed paper) makes it easier for small businesses to recycle.		
B6.19	The recycling focus should be towards large businesses and governments because they generate more waste.		
B7.2	More information about where to buy recycled-content products should be made available.		
<u>Mean Scores of Recyclers and Non-Recyclers</u>			
A13	Yes, Recycler	No, Non-Recycler	Calculated F-value
B6.4	2.058	2.385	0.71344
B6.17	1.863	1.900	0.01761
B6.19	3.351	3.286	0.02774
B7.2	1.810	2.000	0.58497
F-critical=4.057, p=0.05, df=1,45 (mean of 1 = strong agreement, mean of 5 = strong disagreement, mean of 3 = neutrality)			

questions B6.7 and B6.9 indicated disagreement between the property managers that provided recycling programs to their tenants and those that did not provide recycling programs to their tenants. In question B6.7, the recyclers did not view recycling fees as an barrier against recycling. Whereas, the non-recyclers indicated that the recycling fees was a barrier towards recycling. In question B6.9, the recyclers believed that the additional janitorial service time needed to collect recyclable materials was minimal. Whereas, the non-recyclers believed that the additional janitorial service time was not

Table 5.16 Analysis of Property Manager Recyclers and Non-Recyclers

<u>Question No.</u>	<u>Topic of Question</u>		
<u><i>Recycling Program</i></u>			
A14	Are there recycling programs in any of the buildings you manage?		
B6.4	Businesses in a multi-tenant building would benefit more if they collected their materials together in one central location.		
B6.7	The monthly recycling fees charged by recycling haulers discourages small businesses and property managers from recycling.		
B6.9	The additional time necessary for janitors to collect the recyclable materials along with the solid waste materials is minimal.		
B6.16	Lack of space for recycling bins prevents small businesses and property managers from recycling?		
B7.2	More information about where to buy recycled-content products should be made available.		
<u>Mean Scores of Recyclers and Non-Recyclers</u>			
A14	Yes, Recycler	No, Non-Recycler	Calculated F-value
B6.4	2.115	1.290	2.72076
B6.7	3.364	2.500	1.12010
B6.9	2.130	3.667	3.47344
B6.16	2.266	1.469	1.54163
B7.2	1.889	1.750	0.07639
F-critical=4.26000, p=0.05, df=1,24 (mean of 1 = strong agreement, mean of 5 = strong disagreement, mean of 3 = neutrality)			

minimal.

While these findings appear reasonable, the small sample size of non-recyclers did not allow for inferences to interpret the rationale behind the attitudes and opinions of the small business and property manager recyclers and non-recyclers. Additional tests with a larger sample population of non-recyclers is needed to determine what differences, if any, exist between the recyclers and the non-recyclers.

Summary

This chapter covered the results of the structured telephone survey. Given the smaller number of completed surveys received than were originally desired, discretion was used during the data analysis. Nonetheless, this study found that the majority of the small business and the property manager groups surveyed were currently recycling (74% and 85%, respectively) and buying recycled products (79% and 83%, respectively).

Next, this study measured the attitudes and opinions of the small business managers, property managers, janitorial service managers and recycling hauler managers regarding recycling and buying recycled products. The specific questions covered the following four broad categories: cost/benefit, lack of knowledge or technical expertise, perceived inconvenience and apathy.

As summarized in Tables 5.17 through 5.20, the specific questions pertaining to these four broad categories were many and complex. A “+” response indicates that the group believed the issue was not a barrier to recycling and buying recycled products, a “-” indicate that the issue was a barrier, an “N” indicates neutrality, and an “n/a” indicates that the group was not asked to respond to the question.

Table 5.17 Summary of Cost/Benefit Data

<u>Question No.</u>	<u>Problem</u>	<u>SB</u>	<u>PM</u>	<u>JS</u>	<u>RH</u>
B6.1	Start-up cost	+	+	-	-
B6.3	Employee/tenant training	+	+	+	+
B6.4	Centralized recycling program	+	+	+	+
B6.5	Locked bins reduce contamination and theft.	+	+	+	+
B6.7	Monthly recycling fees	-	+	-	+
B6.9	Additional janitorial cost	+	+	-	+
B6.16	Lack of space for bins	+	-	+	-
B11.6	RH should pay for materials collected	-	-	-	+
B11.7	RH should charge for their services	-	-	-	+
B11.11	Volume based waste disposal fees	+	+	n/a	n/a
B7.1	Cost of recycled products	-	-	n/a	n/a

Table 5.18 Summary of Knowledge or Technical Expertise Data

<u>Question No.</u>	<u>Problem</u>	<u>SB</u>	<u>PM</u>	<u>JS</u>
B7.2	More information on recycled products required	-	-	-
B7.4	Quality of recycled products	-	-	-
B7.6	Buying recycled products is part of recycling loop			
B11.1	Membership to business or trade organizations	+	+	-
B11.5	Activities of competitors are important	-	-	-

Table 5.19 Summary of Convenience Data

<u>Question No.</u>	<u>Problem</u>	<u>SB</u>	<u>PM</u>
B6.17	Collecting mixed materials is easier	+	+
B12.4	Distance between work areas and recycling bins	-	-

Table 5.20 Summary of Apathy Data

<u>Question No.</u>	<u>Problem</u>	<u>SB</u>	<u>PM</u>
B6.19	Waste problem lies with the large businesses and the government	+	+

CHAPTER 6 ANALYSIS OF PERSONAL INTERVIEW DATA

Chapter 5 covered the results of the telephone survey data. This chapter presents the results of the personal interview data. Chapter 7 discusses the conclusions regarding the analysis of both the telephone survey data and the personal interview data.

The purpose of the interviews was to determine the barriers that prevent small businesses in a multi-tenant office complex in the City of San Jose from recycling or buying recycled-content products. Members of four business groups were interviewed. These four groups were the small business owners/manager, the property manager, the janitorial service owners/manager, and the recycling hauler owner/manager. Different subjects were selected for the interviews and the surveys. Exposing subjects to only one research method insulated the two types of data sets. Insulating the two data sets from each other ensured that the data collected from one study did not impact the data collected from the other study.

The interviews were conducted using a semi-structured interview script. There were two parts to the interview. Part A focused on company demographics. Responses included simple yes/no responses, fixed short responses, and open-ended short-phrase responses. Part B contained open-ended questions that focused on the issues regarding recycling and buying recycled products. The three interview scripts are included in Appendix B.

The interview script was pre-tested during the month of May 1997. After some corrections, 9 additional interviews were conducted between June 1997 and July 1997.

Code names were assigned to participants to ensure anonymity for both themselves and their companies. Table 6.1 displays the code names given to the participants. These code names were used throughout this chapter.

Table 6.1 Survey Respondents By Group

<u>Business Group</u>	<u>Code Name</u>	<u>Company Profile</u>
Small Business	SB1	Environmental consulting firm with 72 employees.
Small Business	SB2	Satellite office of a large multi-national corporation. 100 employees at this facility.
Property Manager	PM1	Third party property management company. Manages many shopping malls and one office complex.
Property Manager	PM2	Parent company of many smaller apartment complexes. Built, owns and operates one downtown office building.
Janitorial Service	JS1	Small family owned janitorial service company with many years of experience.
Janitorial Service	JS2	One of the largest janitorial service companies in the Bay Area providing services to many large company campuses and multi-tenant office buildings.
Recycling Hauler	RH1	Small independent recycling hauler/garbage collection company.
Recycling Hauler	RH2	State funded group with emphasis on conservation, recycling and youth training.
Recycling Hauler	RH3	Autonomous division of one of the largest refuse collection/recycling companies in the world.

At first glance it appeared that the two small businesses interviewed may not be representative of the typical "small business." Responses from the multi-national business may have been influenced by external factors such as corporate culture and policies. Responses from the environmental firm may have been biased by the

company's pro-environmental philosophy. Nonetheless, because all for-profit companies are committed to generating revenue and reducing operating costs, it was not unreasonable that their responses would also be slanted towards typical "pro-business" attitudes and opinions.

Results of Part A

To establish rapport, the interviewer first asked easy, short-answer questions. The small business and property manager participants were asked to define their company's current recycling and buying recycled products activities. For example, the small business and property manager participants responded positively when asked if their company/tenants currently recycle. Complete results are displayed in Tables 6.2 and 6.3.

Next, the janitorial service and recycling hauler participants were asked to define their company's current policies regarding small business recycling programs. For example, the janitorial service and recycling hauler participants responded positively when asked if their company provides recycling services to their small business clients. Complete results are displayed in Tables 6.4 and 6.5.

Table 6.2 Small Business and Property Manager Recycling

<u>Question</u>	<u>SB</u>	<u>SB2</u>	<u>PM1</u>	<u>PM2</u>
Does your company/tenants recycle?	Y	Y	Y	Y
Why does your company/tenants recycle?				
Reduce garbage costs	◆			◆
Right thing to do	◆	◆	◆	◆
Program already in place	◆	◆		
Don't Know				
Tenants want program	n/a	n/a		◆
What materials are recycled?				
White paper	◆	◆	◆	◆
Mixed paper	◆	◆	◆	◆
OCC	◆	◆	◆	◆
Aluminum cans	◆	◆		
Glass		◆		
Other (e.g., copy/printer toner, packing material)		◆		
Mark the item that best describes your recycling program.				
Materials brought home or recycle center				
Individual business program				
Central program w/janitor assistance	◆	◆	◆	◆
Other				

Table 6.3 Small Business and Property Manager Buy-recycled Products

<u>Question</u>	<u>SB1</u>	<u>SB2</u>	<u>PM1</u>	<u>PM2</u>
Does your company buy-recycled-content products?	Y	Y	Y	Don't Know
What recycled products are purchased?				
White paper	◆	◆	◆	
Colored paper	◆	◆	◆	
Folders	◆	◆	◆	
Copy/printer toner		◆		
Other			◆	
Why does your company buy-recycled products?				
Reduce costs	◆		◆	
Right thing to do	◆		◆	
Other (company policy, try it)	◆			
Don't Know		◆		

Table 6.4 Janitorial Service

<u>Question</u>	<u>JS1</u> Both	<u>JS2</u> Property Manager
Do you normally contract with individual businesses or the property manager?		
Do you have clients with 100 or fewer employees?	Y	Y
Do you provide recycling collection services to your clients?	To some, yes	To some, yes
Why do you provide recycling collection services to your clients?		
Clients wanted assistance	◆	◆
Right thing to do	◆	◆
Competition		
Other		
What types of materials are recycled?		
White paper	Not anymore	◆
Mixed paper	Not anymore	◆
Aluminum cans	◆	◆
Glass		◆
Cardboard (OCC)	◆	◆
Other		
Do you belong to a business or trade organization?	N	Y
Do you provide recycled products for your clients?	Yes, once	Y
If so, why do you provide recycled products for your clients?		
Client wanted recycled products	◆	◆
Reduce operating costs		◆
Other		
What recycled products do you provide for your clients?		
Bathroom supplies	Yes, once	◆
Kitchen supplies	Yes, once	◆

Table 6.5 Recycling Hauler

<u>Question</u>	<u>RH1</u> Y	<u>RH2</u> Y	<u>RH3</u> Y
Do you provide recycling collection services to small businesses?			
Why do you provide recycling collection services to your clients? (Mark all that apply)			
Clients wanted program	◆	◆	◆
Right thing to do		◆	
Competition			
Other			
Do you provide any promotional, educational, or incentive programs to small businesses, property managers and janitorial services?	Yes, for SBs & PMs.	Yes, for SBs & PMs.	Yes, for SBs & PMs.
Do you belong to a business or trade organization?	Y	Y	Y

Results of Part B

All four business groups were asked open-ended questions about their thoughts and experiences regarding recycling and buying recycled products. The data were analyzed using the principles of grounded theory. The analyses yielded three major categories or barriers to recycling and buying recycled products. The three categories were cost/benefit, lack of knowledge and convenience. Apathy did not emerge as a barrier to recycling programs. The rest of this chapter presents these findings.

Cost/Benefit

The economic cost/benefit received from a recycling and buy-recycled product program is a complex issue. The simple argument of "savings realized through

avoidance of disposal cost” does not apply to small businesses in a multi-tenant office complex. Therefore, this broad category was broken down into specific cost/benefit issues. These issues are listed in Table 6.6.

Table 6.6 List of Economic Cost/Benefit Topics

<u>Cost</u>	<u>Benefit</u>
<ul style="list-style-type: none"> • Type of leasing contract • Loss of valuable space • Increased janitorial time • Training employees/tenants • Contamination of recyclable materials • Higher cost and lower quality of recycled-content products 	<ul style="list-style-type: none"> • Control of future operating costs • Environmental reputation

The first barrier identified was the use of a commercial lease called the “modified full-service gross lease.” According to PM1, the “majority of commercial office building leasing contracts are a modified full-service gross lease.” He described this lease as:

This type of lease typically includes a predetermined dollar amount to cover all building maintenance and utility costs for a year. If the preset cost was exceeded, then tenants are backbilled for the difference based upon the square footage occupied. The tenant’s future lease cost was adjusted when the total operating expenses either increased or decreased.

The problem with this lease was it did not provide a direct benefit to either the small business manager or property manager. A recycling program operating under a modified full-service lease can only provide an indirect future benefit. SB1 described the benefit his company receives from their recycling program:

The way our lease works is that the landlord has everything going through to the recycling vendor. Whatever money they (landlord) got back reduced our operating cost.

PM1 described the benefit a small business manager and a property manager receives from a recycling program:

The property management's primary economic benefit is reduced operation costs, which can lead to lower rental fees and increased occupation rates. The small business tenant's primary benefit is the control of future rental costs.

Fortunately, there are other benefits to recycling than monetary gain. Two such benefits are increased employee morale and building the company's "environmentally progressive" reputation. All participants indicated that one reason they recycled was because they felt it was the "right thing to do." Thus, recycling at work appears to be an altruistic act that gives employees a good feeling about themselves and their company. Companies also benefit from recycling because it helped them differentiate themselves and their products in the marketplace. The process of developing and marketing an "environmentally sensitive" product is part of the new "design for the environment" movement that helps companies separate their products from everyone else's products. SB1 commented that:

Companies are trying to look at how to make their products distinguishable in the marketplace. ...(Companies) have jumped onto the recycling bandwagon and other "design for the environment" types of ideas.

The next problem identified was the loss of valuable square-footage to house the recycling containers. Again, due to the small volume of materials generated by small businesses, it is more cost effective for recycling haulers to collect the recyclable materials from the smallest number of locations as possible. This means that the recyclable materials must be consolidated into larger bins located in the common areas.

In the case of individual small business, these containers are often placed in high use, high traffic areas such as the mail room or copy room. In the case of the property management, these containers are often placed in the parking area near the refuse bin. With respect to the property manager, RH1 stated that:

The property manager has to give up valuable footprint, valuable space in order to accommodate more containers and more room to store the same amount of materials.

The next problem identified was the additional cost for janitors to collect and transport the recyclable materials from individual offices to the centrally located recycling containers. RH1 stated that:

They (property managers) are going to have to incur costs with the janitorial service in terms of sorting and handling the recyclable material in different ways.

According to JS1, "a lot of clients are not willing to pay extra to have that (recycling) service." However, as a token of "goodwill," JS1 has provided free recycling service to her clients. And, while JS2 has successfully included the cost of recycling in some of his larger service contracts, he struggles to find a means to market his recycling services to his smaller service contracts.

The next problem identified was the cost to "train" employees/tenant "how to" identify the recyclable items in a mixed recycling program. The definition of "mixed recycling" often varies between recycling haulers. Some mixed recycling programs require separation of bottles and cans from the fiber materials. Other programs accept only a certain mixture of fiber and not others. This is why "training" is required.

Recycling haulers typically provide training at the start of the recycling program. Some property managers provide recycling information to new tenants. Some company managers provide recycling information to new employees. The problem manifests when the employee/tenant turnover rate is high and training must be performed many times for the benefit of the new tenants/employees. PM1 commented that:

We can go out and visit them (tenants) and explain recycling to them. It's a big drain on my staff's time to do that and three months later they change their employees. And, the owners do not educate the new employees and we get into trouble with the recycling hauler. The trouble starts when we receive phone calls from others (tenants) telling us that the trash dumpster area is a mess. There is spillage all over the ground. Then the (recycling) hauler calls us and tells us that the white (recycling) dumpster has too much contamination. He informs you that you will receive a citation if you do not separate the materials. I say fine, end the service. Take your dumpster out of here. I am tired of wasting my time with these tenants who do not learn the lessons and do not follow the practices.

The next cost problem identified was contamination. Contamination is often the result of inadequate employee/tenant training and improper size selection of the recycling and refuse bins. Employees and tenants may throw the refuse into the recycling bin without proper training. If the recycling bins are badly contaminated, recycling haulers may charge a fine or reclassify the materials as refuse. Refuse bins sized too small can cause employees/tenants to either throw the material onto the ground or into the recycling bin. Recycling bins sized too small can also cause employees/tenants to throw the materials in the refuse bin or onto the ground. Contamination becomes a cost issue when property manager must pay to clean up materials thrown upon the ground, to pay the fine charged by recycling haulers, or to pay for landfilling the contaminated materials.

The final cost problems identified were the public's perceptions that a recycled product cost more and is of lower quality than their virgin counterparts. RH1 stated that:

Recycled (products) have a bad reputation for some people because for years some companies were manufacturing poor quality products and selling them at higher prices. Thus, recycling got a bad name. ...Do not expect people to purchase, to spend more money or to accept slightly inferior quality (products) in order to support recycling.

The public's negative perception was first formed when surveys taken after Earth Day 1970 indicated that some people were willing to pay twice as much for recycled products. Manufacturers that use recycled materials marketed their wares to appeal to the select group of "environmentally friendly" people. However, the quality of many of the early recycled products proved to be less than their virgin counterparts. RH1 commented:

The (recycled products) industry got a really bad name because there was this sales force from hell that tried to say it was better when it was not. You have to be honest about what it is and what it has to offer.

Despite new technological advancements and price reductions, the public continues to believe that recycled products cost more and perform less satisfactorily than their virgin counterparts. When asked what would prevent her from buying recycled products, SB2 answered:

If it cost bunches more. ...I would not buy if it did not fit a formula for conducting business.

Fortunately, some people have discovered that like all consumer markets, recycled products include some good items and some bad items, some expensive items and some not-so-expensive items. SB1 stated that:

We try to (buy-recycled-content products) as much as we can...just because that is our nature. We tried (recycled toner cartridges) and we had so many weird problems...It was a third party service. So you know you are depending on them to give you a quality product.

JS1 commented that:

Let's talk about toilet paper. If they do not care, if (they) do not want a high grade toilet paper or they just want recycled toilet paper...and it is going to cost less, then I say, "yea, just use the recycled" (toilet paper).

Lack of Knowledge

The passage of California's AB 939 Integrated Waste Management Bill in 1989 brought recycling to the forefront for many California residents. City after city implemented various single-family residential recycling programs. Participation in home recycling programs led some people to transfer their knowledge of recycling from the home into the workplace. When asked why she recycled at work, PM2 commented that:

I think it's just because we are used to it at home. We are already (recycling) at home.

Unfortunately, commercial recycling is more complex than single-family residential recycling. The complexity comes from the variety and quantity of materials generated. Because each business operation is unique, there is no generic formula or "cookie cutter" approach to commercial recycling. So where do businesses go to obtain information on "how to implement a commercial recycling program"? All participants felt that the City of San Jose should take the lead role in educating businesses on "how to" recycle. SB1 felt that while the City of San Jose has done a wonderful job promoting residential recycling, he said that:

I do not think that the (City of San Jose) has done much of anything (for the) commercial or industrial end of things. I would like maybe pamphlets to go out to businesses.

Regarding recycled products, the main issue appears to be the lack of knowledge regarding the various recycled products available and where they can be purchased. Knowledge about their existence allows people to make intelligent comparisons between recycled products and their virgin counterparts. RH1 commented that:

The product has to be intelligent, well planned, cost effective, well made, good functionality and recycled-content.

The next two barriers discovered were misconceptions that all recyclable materials are valuable and that recycling collection services should be free. One source of these misconceptions was the unusually high market value of fibers⁸ between 1994-95. Due to their unusually high market value, recycling suddenly became popular and lucrative. Some recycling haulers even offered free collection services. Since then, the market value of recycled fibers have stabilized and returned to their historic levels.

Today, the value of a recyclable material is determined purely by the type of commodity, its purity and its quantity. Unfortunately, because small businesses typically generate small volumes of many different types of recyclable materials, the most efficient recycling program for them is a mixed recyclable program. RH3 stated that:

We do it (mixed-paper recycling) specifically because small businesses, in order to accommodate their space restriction, the limited volumes and yet the very, very (different) types of materials that they generate, we target them with co-mingled recycling. It is not cost effective for us or for them to source separate them.

⁸ Fibers include white paper, colored paper, and all other paperboard materials (e.g. cardboard, newsprint, etc.).

Today, recycling haulers charge for their recycling collection services because the value of mixed materials are low.

RH3 explained that:

(Recycling) is simply a collection service much like a garbage collection service, except that you are collecting a different commodity. We have to take a look at how much it costs to collect garbage. Most people believe that collecting garbage is expensive. What is the difference between collecting garbage and collecting recyclable materials? Zero.

Two of the recycling haulers indicated that charging customers for their recycling services has been difficult for business owners and property managers to comprehend. Currently, the third recycling hauler's charter prevents them from charging for their services.

Finally, some participants verbalized their understanding of recycling as a close-loop market system. This is not a new concept. In fact, the three "recycling" arrows were originally designed to symbolize the three steps of recycling; the source separation and collection of recyclable materials, the manufacture of a new product from the recycled materials, and the consumer purchase of the recycled products (US EPA 1989). However, this message became lost when the government focused solely on reducing the amount of waste entering landfills. The three recycling arrows began to symbolize only the collection of recyclable materials. Spread of this misunderstanding was assisted further by the media and the solid waste management and recycling hauler communities. Fortunately, recent recycling information now includes the concept of recycling as a close-loop market system. PM2 commented that:

I think it all started with that triple arrow and what it means... In other words, I mean you are definitely doing your part and it is appreciated when you

separate your trash. However, the full (recycling part of it) is to also take care of buying recycled (products).

SB1 stated that:

I actually favor them (recycled products) because you can actually see that when you recycle something, something's coming back. It's as if the equation is balanced.

The ability to comprehend recycling as a close-loop market system is the key to the future success of the recycling industry. Keep in mind that the three recycling arrows represents a circular motion or a "cycle." Thus, the value of the recycled materials lies in the manufacturer's ability to convert them into consumer products. In turn, the value of a product lies in the consumer's demand for it. Again, all participants felt that educating the business sector about recycled-content products was a role best played by the City of San Jose.

Convenience

Convenience appears to be the biggest barrier faced by small businesses and property managers. Convenience can be viewed in terms of easy access to or availability of a recycling program. When asked why they recycled, the small business and property manager participants responded that they recycled because the program was already available and it was convenient. Availability of a recycling program means that someone else had researched, designed and implemented the program. The only work required on their part was to "join" the program.

Other factors of convenience include access to recycling bins at each individual office and the transport of the recycled materials from each office to the common recycling bins by the janitorial staff. RH3 stated that:

The key to recycling success is to make the program as convenient as the garbage program. You want it to take the place of garbage.

SB1 described the recycling convenience as:

The presence of recycling bins in their offices does not require employees to transport their materials to a central collection area... The janitors come in on Thursdays and pick up the (recycling) boxes.

When asked what would prevent her from recycling, SB2 responded:

Probably inconvenience. If we had to haul bags to a certain location every night. You know something like that would become a nuisance to people's lifestyles... I think the janitors dump it (recyclable materials) into the (larger) bins.

Just like the waste collection service, a successful recycling program in a multi-tenant facility requires the participation of the janitorial service community. However reluctantly, the janitorial service community appears to be responding to the challenge. To maintain "goodwill," JS1 admitted to providing free recycling services for clients that request the service. JS2 also provides recycling assistance for those clients that ask for it. In addition, JS2 is developing plans to market his recycling service to his smaller sized clients.

Apathy

Webster's dictionary defined apathy as "lack of interest, concern or indifference." Therefore, an apathetic attitude towards recycling can be a barrier to recycling programs.

Given that both the small business and property manager groups were currently recycling and buying recycled products, it is possible that apathy was not a barrier for these two groups. SB2 stated that she “believes (that) everyone has a (recycling) role to play.” SB1 commented that they recycled because “they practiced what they preached.” PM2 remarked that people will recycle as long as cost was not an issue. However, it is also possible that the conditions in which small businesses in multi-tenant buildings recycle (e.g., recycling programs were provided by property manager and serviced by janitors) masked their response. In other words, if these preexisting conditions did not exist, would the small business group still recycle? SB2 commented that she would not recycle if it were not convenient. Would she still recycle if she had to establish her own program? Unfortunately, the interview did not cover these questions, therefore, no other potential conclusions could be drawn.

Summary

This chapter covered the results of the semi-structured personal interviews. Four key business groups involved with small business recycling and buy-recycled product programs were interviewed. These four groups were the small business, the property manager, the janitorial service and the recycling hauler.

The first part of the interview employed short answer questions. According to the data, the small businesses in a multi-tenant facility were recycling and buying recycled products. Furthermore, property managers were providing recycling programs to their clients despite the structure of commercial leases. And, however reluctantly, the

janitorial service community was providing recycling collection services for their clients. Finally, the recycling haulers were collecting recyclable materials from small business recycling programs in multi-tenant facilities.

The second part of the interview used open-ended questions. The data were analyzed using the principles of grounded theory. The analysis yielded three broad categories as potential barriers to small business recycling and buy-recycled product programs. These three categories were cost/benefit, lack of knowledge, and convenience. However, the categories often yielded multiple themes. The results of the analyses are summarized in Table 6.7. A “+” indicates that the group believes the issue was not a barrier to recycling and buying recycled products, a “-” indicate that the issue was a barrier, an “n/a” indicates that this topic was not addressed by the group.

Table 6.7 Summary of Interview Data

<u>Cost/Benefit Issues</u>	<u>SB</u>	<u>PM</u>	<u>JS</u>	<u>RH</u>
Common usage of the "modified full-service gross lease"	-	-	n/a	-
Loss of valuable space	+	-	n/a	-
Increased janitorial time	+	+	-	n/a
Training employees/tenants	+	-	n/a	+
Contamination of recyclable materials	n/a	-	n/a	-
Higher cost for recycled products	-	-	+	-
Environmental reputation	+	n/a	n/a	n/a
<u>Knowledge of Recycling and Recycled Products</u>				
Lack of information regarding commercial recycling programs	-	-	-	-
Outdated perceptions and myths	-	-	-	-
Lower quality of recycled products	-	n/a	-	-
Recycled products closes the recycling loop	+	+	+	-
Lack of information regarding buy-recycled products	-	-	-	-
<u>Convenience</u>				
Recycling programs must be as convenient as the waste collection service	-	-	-	-
<u>Apathy</u>				
Apathy is a barrier to small business recycling programs.	-	+	n/a	n/a

CHAPTER 7 DISCUSSION OF FINDINGS

Introduction

This study employed the multi-method research methodology. The two research instruments employed were the structured telephone survey and the semi-structured personal interview. Chapter 5 reported the results of the structured telephone surveys and Chapter 6 reported the results of the semi-structured personal interviews. This chapter examines and discusses the two data sets using descriptive analysis. Chapter 8 presents conclusions and recommendations to increase the success of small business recycling and buy-recycled product programs in multi-tenant office buildings.

Multi-Method Research Analysis Methodology

The goal of this study was two-fold. The first goal was to confirm that cost, lack of knowledge, convenience and apathy were barriers to small business recycling and buy-recycled product programs through the use of a structured survey instrument. The second goal was to discover the barriers to small business recycling and buy-recycled product programs through the use of a semi-structured interview instrument. Finally, a comparison of the two data sets was performed to propose potential barriers with greater confidence when the results concurred and to offer direction for additional studies when the data diverged.

Unfortunately, there is no inferential statistical test or qualitative analysis technique that analyzes both quantitative data from a survey and qualitative data from an interview.

Therefore, a descriptive analysis was applied to compare the two data sets. For example, if the surveys and the interviews identified “monthly recycling costs” as a barrier for the small business group, then it must be a barrier for this group. Another example was “employee training.” The small business group identified this issue as a non-barrier from both the survey and the interview data. Therefore, this group does not believe training to be a barrier to small business recycling. Complete results are presented in Tables 7.1 and 7.2

Discussion of Findings

Table 7.1 presents the summary of issues indicated to be problems from both the survey and interview data. Table 7.2 presents the summary of issues indicated not be to problems from both the survey and interview data.

Issues Indicated To Be Problems From Both the Survey and the Interview Data

The survey and interview data agreed upon a number of issues found to be problems or barriers to small business recycling and buy-recycled product programs. Table 7.1 is a summary of the issues identified by each business group.

First, both the small business and the janitorial service groups indicated that the monthly recycling fee was a barrier to small business recycling programs. Both groups also indicated that recycling haulers should provide free collection services and for the recycling haulers to pay for the materials collected. These responses, along with the property managers’ response, may be attributable to their belief in the overrated value of

Table 7.1 Issues Found To Be Problems From Both the Survey and the Interview Data

<u>Cost of Recycling and Buying Recycled Products</u>	<u>SB</u>	<u>PM</u>	<u>JS</u>	<u>RH</u>
Monthly Recycling Fees	◆		◆	
Additional janitorial time is minimal			◆	
RH should pay for materials collected	◆	◆	◆	
RH should charge for their services	◆	◆	◆	
Lack of space for bins		◆		◆
Cost of recycled products	◆	◆		
Common usage of the "modified full-service gross lease"	◆	◆	◆	◆
<u>Lack of Knowledge or Technical Experience</u>				
More information on recycled products required	◆	◆	◆	
Outdated perceptions	◆	◆	◆	◆
<u>Convenience</u>				
Distance between work areas and recycling bins	◆	◆		
SB = small business; PM = property manager; JS = janitorial service; RH = recycling hauler				

all recycled materials. While these beliefs do have historical origins, the current market value for recycled materials, particularly, mixed materials is usually lower than the cost of collecting and processing the materials (CIWMB 1996). These outdated perceptions must be updated with new data depicting current and future recycled product market trends.

Second, space for the recycling bins was an issue for the property managers. Their main concern may be due to finding and allocating appropriate spaces for both the recycling and the waste bins. Furthermore, the location of the recycling bins must be securable to reduce contamination and theft. The study also indicated that appropriate space for the recycling bins was a barrier for the recycling hauler. Their concern may lie

in obtaining bin locations with easy access for their staff and the collection trucks. Unfortunately, many existing buildings were not designed to be recycle friendly and the best locations for the recycling bins were also occupied by the waste bins.

The next issue identified was the additional janitorial time required to service recycling programs. This was an issue only for the janitorial service group. Their concern appears to be their inability to market their services effectively to their clients, which often left them without monetary compensation for the work provided.

The final cost issue that emerged was the common usage of the "modified full-service gross lease" or "pass-through" clause in commercial leases. According to PM2, the modified full-service gross lease "typically includes a predetermined dollar amount to cover all building maintenance and utility costs for a year." If the preset cost was exceeded, tenants were backbilled for the difference based upon the square footage occupied. This type of lease is similar to the "pass-through" clause in other commercial leases. According to the surveys, 81% of the property managers included a pass-through clause as part of their standard commercial leasing contracts.

The problem with this type of lease is that it does not provide small businesses and property managers with a direct economic incentive to recycle. The property manager passes to tenants all increases in solid waste fees. Therefore, from the property manager's perspective, any savings realized from the avoidance of waste disposal fees through recycling activities benefits only the tenant. However, PM1 cautioned that tenants do not receive any monetary reimbursement. He indicated that the labor cost

required to track the recyclable materials generated by each tenant, and the time needed to calculate and to reimburse the tenants that recycled would be a drain on his staff. Additionally, PM1 stated that the original portion of the lease attributable to waste collection services were often less than \$0.05 per square foot. Therefore, the tenant's reimbursement amount would be negligible. Hence, the promotion of recycling as a means to save money through waste avoidance fees simply does not apply to both small businesses and property managers. This aphorism is only applicable to big corporations that generate large volumes of recyclable materials and that control their own waste collection services.

Despite these issues, the study showed that the majority of small businesses and property managers surveyed were recycling. It also showed that the janitorial service community were assisting clients in their recycling programs. There are three possible explanations for this phenomenon. First, it is possible that their concerns about recycling may be attributable to outdated perceptions. Second, it is possible that these companies were recycling because it is the "politically correct thing to do." Finally, these companies may have instituted a company-wide recycling policy.

With regard to buy-recycled products, cost and lack of information were issues for the small business, property manager, and janitorial service groups. Their concerns maybe attributable to the outdated perception that recycled products are more expensive. As an example, JS1 stated in her interview that she provided recycled bathroom and kitchen supplies once for a client that had requested it. After doing her own research

with her supplier, she found that the some recycled products actually cost less than their virgin counterpart. The survey data indicated that 79% of the small businesses and 83% of the property managers purchased recycled products. The survey also showed that 55% of the small businesses and 45% of the property managers purchased recycled products for altruistic reasons. However, these two groups also indicated that they were concerned about the cost and quality of recycled products. It is very unlikely that these groups would purchase recycled products if they had tremendous adverse affect on their net income or their business operations.

There are four possible explanations for this phenomenon. First, it is possible that their concerns about cost and quality may be attributable to outdated perceptions about recycled products in general and not the specific items purchased. Second, it is possible that the cost and quality of the recycled products purchased were not significantly different than their virgin counterparts to prevent them from purchasing these specific items. Third, it is possible that these companies purchased recycled products because it is the “politically correct thing to do.” Finally, these companies may have instituted a pricing preferential guideline in favor of some recycled products.

The problems pertaining to lack of knowledge or technical expertise was not the lack of data as much as it was with outdated data. The outdated data leads to outdated perceptions that cover a broad range of topics such as the idea that all recyclable materials are valuable or that all recycling collection services should be free. Other topics included the idea the all recycled products cost more and are lower in quality.

These outdated perceptions continue to persist because large volumes of outdated educational materials that promote these concepts are still in circulation and badly need to be upgraded.

Recycling haulers are often faced with issues resulting from outdated perceptions. Such incidences occur when recycling haulers try to educate clients, old and new, about the current market value of mixed material programs. Like all market commodities, the value of recycled materials fluctuate based on supply and demand. Unfortunately, the market value of mixed materials is usually lower than the cost of collecting and processing the materials (CIWMB 1996). Therefore, recycling haulers must charge collection fees to cover their costs.

Next, the issue of convenience was explored. Both the survey and interview data indicated that this was an issue for both the small business and property manager groups. These two groups defined convenience in terms of the distance between their office and the recycling bin. The idea of having to physically walk from her office to some recycling bin located in the copy or mail room represented an inconvenient chore for SB2. RH3 indicated that the key to recycling's convenience is its ability to mimic the operation of a waste collection program. Although recycling will never completely replace the waste collection program, it is certainly possible to imitate it.

Issues Indicated Not To Be A Problem By Both the Survey and the Interview Data

The survey and interview data agreed upon a number of items that were not an problem for small business recycling and buy-recycled product programs. These issues are presented in Table 7.2.

According to the data, the cost to start up a recycling program, such as collection bins, was not an issue for the small business or property manager groups. A possible explanation may be due to the small, one-time only, price and quantity of bins which each business may require. This issue was not a barrier for SB1 because his company used appropriately labeled old boxes and trash bins as recycling bins.

Next, all four business groups agreed that a single centralized recycling program for the entire building was an efficient method for collecting recyclable materials. In addition, the survey indicated that the majority of building-wide recycling programs included the assistance of the janitorial service group. The role of the janitor was to collect and transport the recyclable materials from each individual office to the centralized collection bin. Given recycling's popularity, it was possible that the small business and property manager groups assumed that the janitorial service community already accounted for these costs as part of their standard contract. However, the surveys indicated that a large percentage of the janitorial service community was providing the service outside of a contract. In effect, they were not receiving any monetary compensation for their services.

Table 7.2 Issues Indicated Not To Be A Problem From Both the Survey and the Interview Data

<u>Cost of Recycling</u>	<u>SB</u>	<u>PM</u>	<u>JS</u>	<u>RH</u>
Start up cost	◆	◆		
Employee/tenant training	◆		◆	◆
Centralized recycling program	◆	◆	◆	◆
Locked bins reduce contamination and theft.	◆		◆	
Additional janitorial time is minimal	◆	◆		
Lack of space for bins	◆		◆	
Volume based waste disposal fees	◆	◆	◆	◆
<u>Lack of Knowledge or Technical Expertise</u>				
Buying recycled products is part of recycling loop	◆	◆	◆	◆
Membership to business or trade organization	◆	◆		◆
Activities of competitors are important	◆	◆	◆	◆
<u>Convenience</u>				
Collecting mixed materials is easier	◆	◆	◆	◆
<u>Apathy</u>				
Waste problem lies with large businesses and the government	◆	◆		
SB = small business; PM = property manager; JS = janitorial service; RH = recycling hauler				

Next, all four business groups indicated that businesses should pay waste disposal fees based upon the volume generated. The importance of this issue lies in its effectiveness as an argument to promote waste diversion activities, such as recycling.

Regarding contamination and bin space, both the small business and janitorial service groups did not indicate these to be barriers to recycling. It is possible that their lack of familiarity with the burden of allocating the appropriate and secure location for the recycling bins may be responsible for this response.

Regarding buying recycled products, all four business groups indicated familiarity with the idea of recycling as a close-loop system. All four business groups interviewed were familiar with the popular slogan “if you’re not buying recycled, you’re not recycling.” It is possible that the media’s recent coverage of this slogan contributed to their familiarity with it. According to SB2, the Environmental Defense Fund and the actress Joanne Woodward collaborated on a TV commercial in 1997 to promote this slogan. The commercial also addressed the “connection” between recycling, buying recycled products and the rapid decline of the world’s natural resources.

Next, the data suggests that all four business groups were sensitive to the business operations practiced by their peers. And, except for the janitorial service group, the groups belonged to a number of business and trade organizations. The importance of these results lies in the possible use of business and trade organizations as forums to educate their members on the importance and benefits of recycling and buying recycled products. Also, members of professional organizations that have successful programs can act as role models and leaders. Competitive, yet friendly, challenges can be issued to their peers to put aside outdated perceptions and review their present recycling and buy-recycled programs.

Regarding convenience, the small business and property manager groups agreed that a mixed-material recycling program was the most efficient recycling program for their particular environment. Both the janitorial service and recycling haulers agreed with them. This type of program makes it easier for everyone to recycle because it requires

less sorting of material required for the small businesses, less space requirements for the property manager and less material transporting and handling by the janitorial service and recycling hauler groups.

The final issue investigated was the possibility of small businesses feeling apathetic towards the problem of waste. The survey data indicated that both the small business and property manager groups do not believe that recycling programs should target only large businesses and government agencies. During the interviews, both the small business and property manager groups stated that individual actions contribute to solving environmental problems. However, PM1 added that not being apathetic does not by itself automatically move businesses to recycle. He stated that cost was the primary barrier to recycling. These findings are important because it indicates that the small business group appears to be aware that their recycling efforts are necessary to address the solid waste problem.

Current Recycling and Buy Recycled Product Activities from the Survey Data

Table 7.3 is a summary of the present recycling and buy-recycled product activities of the small business and property manager groups surveyed. According to the

Table 7.3 Present Activities of Small Businesses and Property Managers Surveyed

<u>Topic</u>	<u>SB</u>	<u>PM</u>
% Currently recycling/providing recycling program for tenants	74%	85%
% Currently buying recycled products	79%	83%
% with "No" Knowledge of City of San Jose's AB939 fee	96%	71%
% Currently willing to pay for recycling services.	60%	36%
SB = small business; PM = property manager		

data, the survey refutes the hypotheses that the small business and property manager groups were neither recycling nor buying recycled products. According to the survey data, 74% of small businesses were participating in building-wide recycling programs. The survey also indicated that 85% of property managers has provided recycling programs for their tenants. A possible explanation for the large number of recycling programs may be due to recycling's current popularity as a solid waste solution.

Despite the large percentage of small businesses and property managers currently recycling, their recovery rates are still unknown. These data are important to policy makers and program designers to answer questions like: Are the recycling bins placed in the correct locations? Are the sizes of the recycling bins and waste receptacles correct? Are the frequencies of collection for the recyclable and waste materials correct? These three questions are but a few that require answers so that existing recycling programs can be optimized for maximum efficiency. As for buying recycled products, the survey did not address the criteria used to determine if the items purchased were manufactured using secondary materials. The importance of this data would be to determine the educational requirements needed to increase the amount of recycled products purchased.

Finally, the majority of the small business and property manager groups surveyed were unaware of the source reduction and recycling (AB939) fee imposed by the City of San Jose's (hereinafter called the "City"). The City's goal was to motivate businesses to reduce their waste and increase their recycling activities. This fee is assessed by the

waste hauler for each ton of waste collected and is included in the customer's waste bill. There are two possible reasons for this lack of knowledge. For the small business, the reason may be due to their leasing structure. Because waste collection fees are included as part of their leasing contracts, they do not receive a waste bill; hence it is understandable that they would be unaware of its existence. For the property manager, the small fee amount may cause them to overlook it. Therefore, it appears that the City's goal of motivating this group of small businesses to recycle by imposing this fee has had no impact on them.

Issues From Either the Surveys or the Interviews

There were a number of issues identified in the surveys that were not identified in the interviews, and vice versa. The parallel execution of the surveys and interviews prohibited their inclusion in the other test.

As shown in Table 7.4, some issues emerged during the interviews that were not tested during the surveys. The reason was due to the assumption that some questions did not apply to some of the business groups. For example, the survey did not ask recycling haulers if they should have to pay their clients for the materials collected. However, the interview indicated that the recycling haulers saw this as an issue because some clients had requested some sort of compensation for the materials. Then, there were some questions that were asked during the survey that did not emerge during the interviews. An example was training employees how to recycle. Neither the janitorial service or the recycling hauler groups indicated this to be a barrier. Additional tests are required to

confirm/reject their role as barriers to small business recycling and buy-recycled product programs. Complete results are presented in Table 7.4.

Table 7.4 Issues From Either the Surveys or the Interviews

<u>Cost of Recycling/Recycled Products</u>	<u>SB</u>	<u>PM</u>	<u>JS</u>	<u>RH</u>
Employee/Tenant training		I	S (*)	S (*)
Locked bins reduces contamination and theft		I		I
Monthly recycling fees		I		I
RH should pay for materials collected				I (#)
Cost of recycled products			I (#)	I (#)
<u>Lack of Knowledge or Technical Expertise</u>				
More information on recycled products				I (#)
Lower quality of recycled products	S	S	S	I (#)
Outdated myths and perceptions	I (#)	I (#)	I (#)	I (#)
Membership to business or trade organizations has helped			S	
<u>Convenience</u>				
Collecting mixed materials is easier			I (#)	I (#)
Distance between work areas and recycling bins			I (#)	I (#)
SB = small business; PM = property manager; JS = janitorial service; RH = recycling hauler; I = interview data, S = survey data, (#) = not tested in surveys, (*) = no interview data				

Summary

The goal of this study was two-fold. The first goal was to confirm that cost, lack of knowledge, convenience and apathy were barriers to small business recycling and buy-recycled product programs through the use of a structured survey instrument. The second goal was to discover the barriers to small business recycling and buy-recycled product program through the use of a semi-structured interview instrument. Finally, a

comparison of the two data sets was performed to offer greater confidence when the results concurred and to offer direction for additional studies when the data diverged.

This study found that 74% of small businesses in San Jose were recycling. It also found that 79% of the small businesses were buying recycled products. The two most common reasons given by the small business group for recycling were altruism and the availability of a building-wide recycling program that was provided by the property manager and serviced by janitors. The study also found that 85% of the property managers were providing recycling programs for their tenants. It also found that 83% of the property managers were buying recycled products.

Despite these encouraging figures, there are still three outstanding issues. First, the survey takers may have only contacted the small businesses and property managers that recycled; thereby biasing the data towards recycling and buying recycled products. In other words, the survey respondents may not be representative of the normal distribution of the small business and property manager groups. A follow-up study to contact the small businesses and property managers that did not participate in the survey portion of this study could validate this study's data. Second, this study did not address the effectiveness of the existing recycling and buy-recycled product programs. For example, the amount of recycled materials collected versus the amount of materials generated is still unknown. An in-depth waste assessment is required to determine these figures. Third, this study did not address the criteria used to define a recycled product. The

answer to this question will indicate the small business group's level of understanding of what constitutes as a recycled product.

The study found that all four groups surveyed possessed the basic concepts regarding recycling and recycled products. The data also indicated that each group had different issues of concern, each requiring a different solution. However, further analysis showed that a number of these issues overlapped between the four original categories of cost/benefit, lack of knowledge, convenience and apathy. What appeared to be missing was an up-to-date knowledge base. Finally, this study also concluded that small businesses were not apathetic to the issue of waste and it was therefore eliminated. Table 7.5 summarizes each group's main issues.

Table 7.5 Updated Barriers to Small Business Recycling and Buy-recycled Product Programs

Small Business	<ul style="list-style-type: none"> • Convenience of recycling program • Outdated information regarding recycling and recycled products
Property Manager	<ul style="list-style-type: none"> • Motivation to act as recycling program coordinator • Allocating secure space for recycling bins • Common usage of the "modified full-service gross lease" • Outdated information regarding recycling and recycled products
Janitorial Service	<ul style="list-style-type: none"> • Monetary compensation for providing recycling assistance to clients • Outdated information regarding recycling and recycled products
Recycling Hauler	<ul style="list-style-type: none"> • Program efficiency • Outdated information regarding recycling and recycled products

This study found that each group had specific issues regarding recycling programs. The small business group indicated that their primary concern was the convenience of the recycling program. This group expressed their concern for convenience in terms of collecting recyclable materials as a mixed recycling commodity and the distance between their office and the recycling bins. This group expressed the need for designing recycling programs that are as convenient as the garbage collection program. This means that every detail, starting with the placement of the recycling bins, to the collection and transportation of the "mixed" recyclable materials from individual offices to the common recycle bins by the janitors, and finally the collection of materials placed in the common bins by the recycling hauler, must become standard operation.

The main issue for property managers was finding the motivation to act as recycling program coordinators. Coordinating a recycling program is not often a high priority, even when desired by some of their tenants. However, their centralized position helps to maintain cohesion between the janitorial service, recycling hauler groups, and each small business tenant.

The survey data also indicated that the majority of existing office building recycling programs were directed by the property managers and serviced by janitors. Therefore, property managers are key to the small business recycling programs in an office building. This finding is consistent with the studies conducted by the the Center for Development of Recycling (1996), City of San Leandro (1995), and the GLS Research (1996).

The janitorial service's main concern regarding recycling programs appeared to be receiving monetary compensation for services rendered. According to the data, the majority of janitors that provided recycling assistance did so without benefit of a contract. Therefore, this service was provided only when it was specifically requested for by clients.

As for the recycling hauler, their main concern regarding recycling programs appeared to be implementing the efficient recycling programs. This group indicated that their interest lay in collecting large volumes of recyclable materials in the shortest amount of time possible. This concern leads to specific recycling program design issues such as the frequency of collection, and the quantity, size, and location of the recycling bins.

Finally, the data indicated that the small business, property manager and janitorial service groups appeared to possess outdated information regarding recycling and recycled products. These outdated perceptions include:

- Recycling hauler should pay clients for materials collected.
- Recycling haulers should not charge for their collection services.
- The cost of recycled products is more than their virgin counterparts.
- The quality of recycled products is less than their virgin counterparts.

These outdated perceptions covered a broad range of topics such as the beliefs that all recyclable materials are valuable and that all recycling collection services should be free. Information regarding the present market value for the different types of recyclable commodities are needed. Recycling haulers expressed concern about these outdated

perceptions because they were constantly faced with educating clients about the cost of recycling collection programs and the market value of recycled materials.

Another outdated perception was the idea that all recycled products cost more and were lower in quality than their virgin counterparts. As indicated by the data, some of the small businesses and property managers surveyed purchased recycled products because they were actually cheaper than their virgin counterparts. Technology has greatly improved the quality and reduced the cost of some recycled products since Earth Day 1970. Unfortunately, these outdated perceptions continue to persist in the minds of the general public. This maybe due to the large volumes of outdated educational materials that promote these concepts which are still in circulation and are badly in need of updating.

Finally, this study showed that despite the critics of recycling programs and the slow growth of recycled products market, the small businesses and property managers surveyed may be hearing and acting upon the message of recycling as a “closed-loop system.” Perhaps the prevalence of home recycling programs fortuitously ingrained the word in the public’s everyday language. And, perhaps recycling’s notoriety has espoused the idea of “not recycling” as publicly offensive. Recycling’s popularity will certainly help secure its continued existence.

CHAPTER 8 CONCLUSIONS AND RECOMMENDATIONS

Introduction

According to the US EPA (1989, 50), recycling is a three-step, closed-loop process “by which materials otherwise destined for disposal are collected, reprocessed or manufactured, and reused.” This study found that the majority of the small businesses and property managers surveyed were performing two of the three steps; collecting recyclable materials and purchasing recycled products. This chapter discusses the implications of these results and provides recommendations to further promote recycling and buy-recycled product programs to small businesses in multi-tenant buildings.

Activities of Small Businesses and Property Managers in San Jose

Because businesses generate large portions of the waste stream, Lee, De Young and Marans (1995) believe that businesses play an important role in promoting recycling (and buy-recycled products) behavior. This study found that 74% of small businesses in multi-tenant office buildings (hereinafter called “office building”) recycled and 85% of the property managers provided recycling programs for their tenants. Regarding buy-recycled programs, 79% of the small businesses and 83% of the property managers have purchased recycled products.

Despite these encouraging figures, each group expressed distinctly different concerns regarding recycling and buy-recycled programs. Convenience appeared to be the small business group’s main concern. The small business group had two views regarding

convenience. These issues were collecting mixed recyclable materials as a mixed recycling commodity and the distance between their office and the recycling bins. This study found that the design of the recycling collection program must be as convenient as the garbage collection program. In the ideal world, it would be possible for the recycling program to replace the garbage collection program.

The property managers' main issue was their lack of motivation to supervise recycling programs. Property managers have many competing responsibilities and coordinating a recycling program is not a high priority, even when desired by some of their tenants. However, their centralized position helps maintain cohesion between the janitorial service, recycling hauler groups, and the business tenants in the building; thus providing a "voice of authority." Therefore, property managers are key to the small business recycling programs in an office building. This is consistent with the studies conducted by the City of San Leandro (1995), the Center for Development of Recycling (1996), and the GLS Research (1996).

The janitorial service and recycling hauler groups also had specific issues regarding recycling programs. Lack of monetary compensation was the janitorial service group's main concern. As for the recycling hauler, their main concern appeared to be implementing the most efficient recycling program.

Finally, the data showed that all four groups appeared to comprehend basic concepts regarding recycling and buying recycled products. What appeared to be missing was an up-to-date knowledge base. Analysis of the data showed that a number of issues

overlapped among the four original categories of cost/benefit, lack of knowledge, convenience and apathy. These outdated perceptions covered a broad range of topics such as the belief that all recyclable materials are valuable and the belief that all recycling collection services should be free. Other outdated perceptions were all recycled products cost more and were lower in quality than their virgin counterparts. Unfortunately, these outdated perceptions continue to persist in the minds of the general public. This maybe due to the large quantity of outdated educational materials promoting these concepts that are still in circulation and are in need of updating. Finally, this study also concluded that the small businesses surveyed were not apathetic to the issue of waste and therefore it was eliminated. Table 8.1 is a repeat of Table 7.5.

Table 8.1 Barriers to Small Business Recycling and Buy-recycled Product Programs

Small Business	<ul style="list-style-type: none"> • Convenience of recycling program • Outdated information regarding recycling and recycled products
Property Manager	<ul style="list-style-type: none"> • Motivation to act as recycling program coordinator • Allocating secure space for recycling bins • Common usage of the “modified full-service gross lease” • Outdated information regarding recycling and recycled products
Janitorial Service	<ul style="list-style-type: none"> • Monetary compensation for providing recycling assistance to clients • Outdated information regarding recycling and recycled products
Recycling Hauler	<ul style="list-style-type: none"> • Program efficiency • Outdated information regarding recycling and recycled products

The actions of the small businesses and property managers surveyed appears to indicate that these two groups do not have major concerns regarding recycling and recycled content products. There are three potential explanations. First, it is possible that those performing the surveys successfully contacted only the small businesses and property managers that recycled; thereby biasing the data towards recycling and buying recycled products. In other words, the survey respondents may not be representative of the normal distribution of the small business and property manager groups. Second, it is possible that the respondents simply operate in conditions more favorable to recycling and purchasing recycled products than other small businesses and property managers. Finally, it is also possible that some of the existing small business recycling and buy-recycled programs may be “symbolic” in nature and do not have the support of all company personnel. Therefore, future studies are needed to:

- Is the survey data representative of the normal distribution of small businesses and property managers in multi-tenant office buildings?
- Determine if there is a difference between small businesses and property managers in multi-tenant office buildings from small businesses and property managers operating under different environments?
- Measure the effectiveness of recycling and buy-recycled product programs in multi-tenant buildings.

Benefits to Recycling and Secondary Markets

Businesses understand that efficiency is a key component to their success.

Webster’s dictionary defined efficiency as “the ability to produce a desired effect,

product, etc. with a minimum of effort, expense, or waste” (Webster 1988, 433).

However, in our consumer-oriented and highly industrialized world, virgin resources are collected, used, and then thrown away as garbage. The industrial process is resource and energy exhaustive and creates unnecessary waste. Therefore, the mere presence of garbage illustrates our inefficient use of the natural resources. With their future success at risk, businesses must expand their primary goal of just “making money” to include their role in the recycling process.

Therefore, redefining recycling from a simple solution to the waste problem to a broader materials efficiency issue is key to controlling the rate and amount of landfill space, natural resources, and energy that are consumed. However, the well organized and politically powerful materials economy⁹ continues to benefit from the status quo, leaving the rest of society to pay for the inefficient use of materials.

Recycling presents an opportunity to reclaim valuable resources and return them over and over again to the production process. Recycling haulers are motivated to collect used materials when there is demand for them. In turn, consumer demand drives manufacturers to reuse these materials in their manufacturing processes. This three step, closed-loop process is called the “recycling loop.” Thus, resources are saved only when the recovered materials are reused in the manufacture of new products and purchased by

⁹ Materials economy is the inefficient and wasteful use of resources through the artificial devaluation of environmental costs resulting from the extraction of virgin materials, the manufacture, consumption and finally disposal of the products. The materials economy caters to the consumer society and the culture of convenience, conspicuous consumption and planned obsolescence as opposed to designing products for efficiency, durability and repairability (Young and Sachs 1994).

consumers. Another benefit to recycling is job creation. According to Young and Sachs (1994, 41) “every million tons of solid waste generates 1,600 recycling jobs; if the same million tons were landfilled, only 600 workers would be involved, and incinerating that amount requires only 80 workers.” Finally, recycling reduces pollution. Just switching from virgin to recycled newsprint, can result in up to 99% decrease in the amount of ammonia and chlorine released (Young and Sachs 1994, 47).

Familiarity with local issues place city and county governments in the best position to address problems regarding waste reduction activities and prolonging the lifespan of landfills. However, the broader jurisdictional power of state and federal governments allows them to address important issues such as saving energy, wildlife, and wildlife habitat. Nevertheless, local governments can certainly provide the state and federal governments with technical and political assistance to addressing these broader issues that occur within their borders. Local governments can also provide the forums to encourage the development of partnerships and the exchanges of information between businesses, state and federal regulatory agencies, environmental educators and the local community. Future studies can be conducted to determine the size of the benefit received from each of these items.

Understandably, some critics point to the imperfections of the recycling industry and secondary market economy. It is true that some highly mechanized recycling processes do not require many employees. And, some secondary manufacturing processes, such as the deinking of paper, produce pollutants. And, while some recycling programs have

failed in the past, in large part, their failure stems from insufficient consumer markets for recycled products and the inability to convince the public of the program's needs and benefits. Overall though, the recycling and secondary market industries tend to offer brand new employment opportunities and reduced pollution when compared to their virgin counterparts (Young and Sachs 1994).

Recommendations

Sustainable systems and methods are needed to stem, and possibly reverse, both the environmental and economic damages that currently plague the world. These systems and methods must apply to the local, as well as the global, environs. A coalition of local communities, grass-roots environmental groups and educational institutions must get together with local government agencies to change the focus to a more efficient use of resources, including the recovery, reuse and purchase of recycled products.

The recommendations are presented in three sections. The first section presents recommendations for the four business groups. The second section is for local government agencies, and the third section is for state and federal government agencies.

Recommendations for the Four Business Groups

While the majority of materials recycled by the small businesses surveyed were paper and other paper fibers, this study found that most of their recycling programs were "mixed" recycling programs. Unfortunately, the cost of collecting and processing mixed material is often more than its market value (CIWMB 1996). To increase the value of the materials requires source separating the different types of recyclable commodities.

This may include separating the white computer/copy paper from the colored computer/copy paper. Or, it may include separating cardboard from newspapers. These source separation tasks can be accomplished by either the small business group or the janitorial service group. Unfortunately, increasing source separation by the businesses could encroach upon their convenience requirement for a successful recycling program; potentially decreasing their participation rate. As for the janitorial service group, they would require additional compensation for services rendered. Therefore, property managers could hire the janitors to separate the mixed recyclable materials. The additional janitorial service cost would be billed directly to the tenants. Because the fee is spread amongst all tenants, the cost to individual businesses would be small. Given that over 50% of the small businesses surveyed indicated that they were willing to pay some nominal amount for a recycling service, this fee should not be a problem for them. Therefore, the small business tenant continues to separate only the mixed recyclable materials from the waste materials. The janitors will then separate the mixed materials into white paper, colored paper, glass, plastic, and "other" commodities into separate containers. Fortunately, increases in materials collected in the recycling bins corresponds to an equal decrease in the amount of materials collected in the waste bins. The decrease in the amount of waste generated could reduce the need for daily waste collection services to maybe 2 or 3 days a week. The waste and recycling collection service days could be then be alternated. For example, the janitorial service could collect the recyclable materials on Mondays, Wednesdays and Fridays. Waste would then be

collected on Tuesdays and Thursdays. Common areas, such as bathrooms and cafeteria rooms would continue to be serviced on a regular basis. Thus, the additional janitorial service cost should be moderate at best. As for the property manager, they would benefit from the increased value of recyclable materials recovered.

Regarding recycled products, small businesses and property managers could form a purchasing coalition to increase their individual purchasing power. Suppliers often provide discounts for large volume orders. Buy-recycled purchasing coalitions are not new to businesses. Two buy-recycled purchasing coalitions are in existence, the Buy-Recycled Business Alliance and Recycled Paper Coalition.

As for the property managers, their main issue was lack of motivation to supervise recycling and buy-recycled product programs. Therefore, the task of supervising both programs could be conducted by an outside contractor. The contractor would research, implement, and maintain both programs. It is even possible for the janitorial service community to provide these services. However, they would need a strong marketing strategy to persuade clients to pay for such services. As for the property managers, they can work with the small businesses, property managers and janitors in designing the optimum program for all four parties. The role of the local government agencies would be to ensure that all four parties possessed current information regarding recycling and buy-recycled programs.

A summary of the recommendations for the four business groups is shown in Table 8.2.

Table 8.2 Summary of Recommendations for Four Business Groups

Small Business:

- Work with property manager and janitors to optimize recycling programs.
- Contact suppliers to obtain current information regarding recycled products. Form buy-recycled purchasing coalitions with other tenants and property manager.

Property Managers

- Outsource the management of recycling and buy-recycled product programs.
- Implement recycling program that collects waste and recyclable materials on alternate days.
- Hire janitors to source separate recyclable materials.
- Contact suppliers to obtain current information regarding recycled products. Form buy-recycled purchasing coalitions with other tenants and property manager.

Janitorial Service

- Develop marketing strategy to sell recycling assistance services.
- Use local governments and trade organizations to update clients regarding services.

Recycling Hauler

- Work with property managers and janitors to design recycling program.
- Use local governments and trade organizations to update clients regarding services.

Recommendations for the Local Government

Local governments can play a central role to address the barriers to small business recycling. They can provide the technical expertise to update its business citizens, particularly the property manager group, about current recycling and recycled product conditions; thereby putting to rest many of their outdated perceptions. The local government agencies can use business and trade organizations as educational forums to disseminate information. Other educational mediums identified during the interviews included billboards, TV, and radio.

Local governments can also develop standardized definitions for the different types of recycling programs. Standardized definitions can decrease the amount of training necessary to abate confusion about what materials are recyclable and what materials are not recyclable amongst the programs offered by different recycling haulers.

Local governments can also assist the recycled product industry by providing tax incentives and change zoning ordinances in favor of manufactures of recycled products. Locating manufacturers that use recycled materials near the material source reduces the cost of transporting the materials; thereby, reducing the cost of the finished product to the consumer.

Finally, local governments can also provide a leadership role by advertising itself as an example of a “model” recycler and buy-recycled products organization. Table 8.3 is a summary of recommendations for local government entities.

Recommendations for the State and Federal Governments

On the state level, the California Integrated Waste Management Board (CIWMB) has existing programs that provide tax incentives and loans to encourage manufacturing processes to use recycled products. However, the CIWMB needs to educate the business community more about these opportunities. The CIWMB has also funded studies and collected publications regarding current recycling and buy-recycled product programs. These types of information need a wider distribution range in order to reach the small business community. The state can also provide a leadership role by complying with

Table 8.3 Summary of Recommendations for Local Governments

Specific Items

- Provide technical assistance to the four business groups on current recycling and buy-recycled product issues and activities. Use professional business and trade organizations as outreach platforms.
- Hire consultant to develop methods to track the waste and recyclable materials generated by small businesses in multi-tenant office buildings
- Standardize definitions of the different recycling programs.
- Develop outreach programs that address issues specific to each group.
- Disseminate existing information regarding recycling and recycled products (use mediums such as billboards, radio, TV, etc.)

General Items

- Build coalitions between environmental educators, state and federal agencies, and four key players to address issues of concern.
- Provide technical and political assistance to state and federal governments to remove existing subsidies that promote wasteful consumption of resources and energy.
- Tax incentives and zoning changes to encourage manufacturers that use locally collected recycled materials.
- Act as a recycling and buy-recycled organizational role model.

their own waste diversion goals and advertising itself as an example of a “model” recycler and buy-recycled product organization. Finally, the state can remove antiquated laws and subsidies that promote wasteful acts upon the natural resources

On the federal level, the US government can also remove old antiquated laws and subsidies that encourage wasteful acts upon the natural resources. These subsidies “effectively shift a portion of the costs of obtaining virgin materials from the consumer to the taxpayer” (Olszewski 1990, 106). Some of the industries that benefit from these government subsidies include the timber, mining, energy, and transportation industries. The result would be a balanced market where virgin and recycled materials can truly compete.

Since the current materials economy threatens global ecosystems, coalition-building amongst businesses, governments, and environmental educators must also be pursued on a global level. The United States can play a leading role to promote a more efficient use of the world's remaining natural resources through recycling activities. Increasing recycling and buy-recycled programs could decrease the rate and amount of natural resources that are used. A reduction in the rate of natural resource consumption helps to preserve the remaining wildlife habitats essential for many endangered species. Table 8.4 is a summary of recommendations for state and federal government entities.

Table 8.4 Summary of Recommendations for State and Federal Governments

- Work with local governments to disseminate existing information..
- Provide economic incentives for businesses to use locally collected recycled materials in their manufacturing process.
- Comply with own regulations and become a role model.
- Provide forums for building coalitions between environmental educators, local governments and businesses.
- Remove existing subsidies that promote wasteful consumption of resources and energy.
- US government to take leadership role in promoting the efficient use of natural resources through recycling activities to other nations.

Summary

When viewed differently, garbage is nothing more than a highly refined resource. And, recycling and buy-recycled product programs are just two components of an efficient system that recovers and returns this highly refined resource into a useful product. A new political force composed of environmental educators, businesses, and

government agencies need to find creative solutions to get the most out of our materials. We need to move to a new standard that promotes quality instead of quantity.

While the four business groups surveyed do not fall into De Young's (1989) "more positive recycler" category, they might fall between his "less positive recycler and the more positive non-recycler" categories. And, because large percentages of the small businesses and property managers surveyed recycled and purchased recycled products for altruistic reasons, their environmental value orientation appears to fall into the "social-altruistic value orientation" definition by Stern, Dietz and Kalof (1995, 326). These are all encouraging results that may indicate that the business groups involved in this study might be acting upon their newly acquired "environmental language" (Scott and Willits 1994).

On a broader scale, it is essential that industrial nations, the world's resource gluttons, sharply improve their materials efficiency. A world filled with billions of people consuming as much material per person as Americans, Europeans, and Japanese currently do would have unthinkable ecological consequences. Although we will never completely eliminate virgin materials production, extractive industries will need to shrink substantially as the world moves toward greater materials efficiency and greater uses of secondary materials.

Incessant demands for natural resources may eventually impose a serious threat to our country's security and welfare. Fortunately, a new "environmental patriotism" is sweeping the land, led by individuals who perceive that separation, recovery, and reuse

of waste are essential to the long-range stability and well-being of this nation. Perhaps the major challenge is to instill the belief that recycling is fundamental to preserving our way of life. When properly motivated and organized, people find ways to get the job done.

APPENDIX A STRUCTURED SURVEY QUESTIONNAIRE

Due to differing emphasis, three surveys were developed to address issues specific to each business group. One survey was created for the small business group, a second for the property manager group, and a third for the janitorial service and recycling hauler groups.

School of Social Science * Department of Environmental Studies
One Washington Square * San Jose, California 95192

SMALL BUSINESS RECYCLING SURVEY

Principal Investigator: Mellicent deJesus Fraticelli, MS

Title: "Barriers to Small Business Recycling and Buy-Recycled Programs in a Multi-tenant Building"

My name is Mellicent deJesus Fraticelli and I am a graduate student at San Jose State University. I am conducting research regarding small business recycling and buy-recycled programs in a multi-tenant building. The survey is intended to assess the views of business owners, property managers, janitorial service managers, and recycling hauler managers concerning their company's attitudes and opinions regarding recycling and recycled-content products. The findings of this and subsequent analyses will contribute to the understanding of business recycling and buy-recycled products programs.

Your company was randomly selected from the list of all businesses operating in the City of San Jose. Would you consent to participate in this study? The survey should take approximately 10 minutes to complete. Be assured that all individual responses will be kept strictly confidential. All data will be key-punched for statistical analysis by research staff and respondents will not be identified individually when the results are reported. The emphasis of this research is on group profiles rather than on individual responses. If there is any questions that does not apply to your situation, or are unable or don't want to answer, just skip the question and continue on to the next question.

1. The data collected will provide greater understanding of small business recycling and buy-recycled products programs.
2. You understand that the results of the study may be published but that no real names will be used or any information that may identify you may be used.
3. Should there be any questions about the study or should you have any complaints, you may call Dr. Anne Lawrence at 408-924-3586 Graduate Advisor or Dr. Les Rowntree at 408-924-5487 Environmental Studies Department Chair. Questions or complaints about research, subject's rights, or research related injury may be presented to Dr. Serena Stanford, Associate Academic Vice President for Graduate Studies and Research at 408-924-2480.
4. This consent is given voluntarily. You understand that you may refuse to participate at any time and am free to withdraw from the study at any time without prejudice to your relations with San Jose State University or any participating institution.

I will contact you in one week by phone to determine your participatory status.

Subject's Name or Initials and Title

Date

There are two parts to the survey. Part A focuses on demographical information. Part B focuses on your company's position on recycling and recycled-content products.

Part A: Demographical Questions

3. Type of business:
- | | |
|---|------------------|
| <input type="checkbox"/> Service | What type? _____ |
| <input type="checkbox"/> Retail/Wholesale | What type? _____ |
| <input type="checkbox"/> Manufacturing | What type? _____ |

4. Number of employees: _____ 4a. Age of Company: _____ yrs

5. What is the employee turnover rate?
- | | |
|--|---|
| <input type="checkbox"/> (low - 5 or more yrs) | <input type="checkbox"/> (med - 2 to 5 yrs) |
| <input type="checkbox"/> (high - less than 1 yr) | |

6. What percentage of the employees are _____ (Female) and _____ (Male)?

7. Is the owner/highest level manager _____ (Female) or _____ (Male)?

8. Is the company responsible for their own waste hauling service or is it included in the lease?
- _____ (own) _____ (lease)

***** If Lease, skip to Item 10 *****

9. Who is waste hauler? _____

- 9a. Approximately how much is paid/month for waste service? _____ cu yd/month

10. Does your commercial lease include a "pass-through clause" stating that all costs above some predetermined amount will be "passed on" to the tenants? _____ (Y) _____ (N)

If YES, how often does it occur and approximately how much is paid to cover this clause?

- | | | |
|----------------------------------|-------------------------------------|------------------------------------|
| <input type="checkbox"/> Monthly | <input type="checkbox"/> Bi-monthly | <input type="checkbox"/> Quarterly |
| _____ cu yd/occurrence | | |

11. What types of waste are generated on site and what percent does each type represent?
- | | | | |
|---|---------|--|---------|
| <input type="checkbox"/> toner cartridges | _____ % | <input type="checkbox"/> aluminum | _____ % |
| <input type="checkbox"/> mixed paper | _____ % | <input type="checkbox"/> glass bottles | _____ % |
| <input type="checkbox"/> cardboard | _____ % | <input type="checkbox"/> white paper | _____ % |
| <input type="checkbox"/> packing material (peanuts) | _____ % | <input type="checkbox"/> Don't Know | |
| <input type="checkbox"/> other | _____ % | | |

(For example, white paper may represent 60% of the waste generated by your business office, while cardboard represents 30%, aluminum represents 5% and packing material the other 5%.)

- 11a. Would you like a waste audit? _____ (Y) _____ (N)

12. Do you belong to a trade or business organization? ____ (Y) ____ (N)

**** If NO, go to 13; if YES, go to 12a ****

12a. If yes, to which organization(s) do you belong? _____

12b. How long have you been a member? _____ yrs

12c. What types of services do they provide?

____ Financial Advise	____ Mentoring
____ Market Info	____ Legal Advise (Laws/Regulations)
____ Competitive Information	____ Contacts/Networking
____ Technical Info	____ Other _____

13. Is there a recycling program at work? ____ (Y) ____ (N)

***** If yes, skip to 14. If no, continue to 13a. *****

13a. Have employees asked for a recycling program? ____ (Y) ____ (N)

If yes, how many (in percentages)?

____ Few (20% or less) ____ Many (20% to 50%) ____ A Lot (more than 50%)

***** Go to 16 *****

14. When did you begin recycling at work? _____ Month _____ Year _____ Don't Know

14a. Why was recycling program started?

____ Right thing to do	____ Reduce operating costs
____ Competitors do it	____ Other _____

14b. Does your recycling program include all other tenants in your building?

____ (Y) ____ (N)

14c. Who is your recycling hauler? _____

14d. How long has the recycling program been operational?

____ yrs _____ months ____ Don't know

14e. What percentage of employees _____ % recycle? ____ Don't know

14f. When you began your program, who helped to educate your employees?

____ Recycler/Hauler	____ City provided materials	____ Tenant meetings
____ Own materials	____ Business/trade organization	____ No Info, just did it
____ Other _____		

14g. What items are recycled?

<input type="checkbox"/> toner cartridges	<input type="checkbox"/> %	<input type="checkbox"/> aluminum	<input type="checkbox"/> %
<input type="checkbox"/> mixed computer paper	<input type="checkbox"/> %	<input type="checkbox"/> glass bottles	<input type="checkbox"/> %
<input type="checkbox"/> cardboard	<input type="checkbox"/> %	<input type="checkbox"/> newspapers	<input type="checkbox"/> %
<input type="checkbox"/> packing material (peanuts)	<input type="checkbox"/> %	<input type="checkbox"/> white paper	<input type="checkbox"/> %
<input type="checkbox"/> other	<input type="checkbox"/> %		

(For example, white paper may represent 50% of the materials recycled by your business office, while cardboard represents 40%, aluminum represents 5% and packing material the other 5%.)

15. Do you have any promotional, educational, or incentive program for your employees?

☐ (Y) ☐ (N) ☐ Don't know

***** If NO, skip to 15b *****

15a. If yes, what programs are available?

<input type="checkbox"/> Newsletters	<input type="checkbox"/> Giveaways (mugs, T-shirts)	<input type="checkbox"/> Gift Certificates
<input type="checkbox"/> Bulletins	<input type="checkbox"/> Monetary incentives	
<input type="checkbox"/> Other	_____	

15b. What is the title of the person responsible for the recycling program? _____

Do they have full management support? ☐ (Y) ☐ (N)

15c. On a scale of 1 to 10, how would you rank your level of awareness and knowledge on the topic of garbage, landfills, recycling, and so forth?

Little to No Knowledge	Moderate Knowledge	A Lot of Knowledge
0	5	10

15d. On a scale of 1 to 10, how would you rank your level of active participation in recycling related activities?

Little to No Activity	Moderate Activity	A Lot of Activity
0	5	10

15e. Regarding your level of awareness and knowledge on recycling, where do you get your information and exposure; what are your sources?

<input type="checkbox"/> City provided literature	<input type="checkbox"/> Colleagues/Trade Journals	<input type="checkbox"/> Media ads
<input type="checkbox"/> Competitors	<input type="checkbox"/> Friends & family	<input type="checkbox"/> Earth Day events
<input type="checkbox"/> Other	_____	

16. The following are some scenarios of how recyclable materials can be collected. Identify which scenario best fits your program.

_____ Employee collects own recyclable materials and brings them home or to a recycling center.

_____ Employees collect recyclable materials at workstation and then transport them to a central collection area located within the tenant's leased property. Another employee brings them home or to a recycling center.

_____ Employees collect recyclable materials at workstation and then transport them to a central collection area located within the tenant's leased property. Recycling hauler collects all recyclables individually from each tenant.

_____ Employees collect recyclable materials at workstation and janitorial service transports them to a central collection area located within the tenant's leased property. Recycling hauler collects all recyclables individually from each tenant.

_____ Employees collect recyclable materials at workstation and janitorial service transports them to a single central collection area outside of the tenant's leased property but within the building property. Recycling hauler picks up recyclables from single central location.

_____ Other _____

17. On a scale of 1 to 10, how would you rank your knowledge of products made from recycled materials (e.g. where to buy them, how they compare to products made with new materials, comparisons on quality, price and availability)?

Little to No
Knowledge

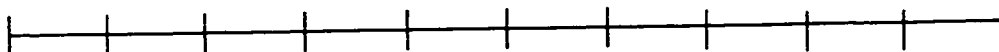
Moderate
Knowledge

A Lot of
Knowledge

0

5

10



17a. On a scale of 1 to 10, how would you rank your level of active participation in buying products made with recycled materials?

Little to No
Activity

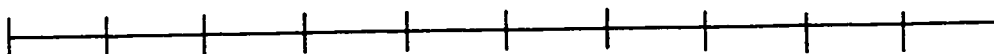
Moderate
Activity

A Lot of
Activity

0

5

10



17b. Does the your company purchase any recycled content products? ____ (Y) ____ (N)

**** If YES, Skip to 18 ****

17a. Have employees/tenants asked for recycled content products? ____ (Y) ____ (N)

If yes, how many (in percentages)?

_____ Few (20% or less)

_____ A Lot (more than 50%)

_____ Many (20% to 50%)

****** Go to Part B ******

18. Who initiated buy-recycled program?

☐ Upper Manager/Owner
☐ Purchasing Officer

☐ Non-management personnel
☐ Don't know.

18a. Why was buy-recycled program started?

☐ Right thing to do
☐ Competitors do it

☐ Reduce operating costs
☐ Other _____

18c. What recycled-content products are purchased?

☐ white paper % _____
☐ colored paper % _____
☐ toner cartridges % _____
☐ Bathroom/Kitchen % _____
supplies

☐ manila folders % _____
☐ hanging folders % _____
☐ packing material % _____
other % _____

(For example, all or 100% of the white paper your company purchases is recycled paper.)

19 Does the janitorial service provide recycled products for your use?

☐ (Y) ☐ (N) ☐ Don't Know

******* If NO or Don't Know, skip to 20 *******

19a. What recycled products are provided?

☐ Bathroom supplies
☐ Kitchen/cafeteria supplies

☐ Other _____

20 Does the property manager provide recycled products for your use?

☐ (Y) ☐ (N) ☐ Don't Know

******* If NO or Don't Know, go to Part B *******

20a. What recycled products are provided?

☐ Bathroom supplies
☐ Kitchen/cafeteria supplies

☐ Other _____

21. Would your company be interested in participating in a cooperative to buy-recycled content products?

☐ (Y) ☐ (N)

******* Continue to Part B *******

Part B: Attitude and Opinion Survey Questions

1. Do you recycle at home? ☐ (Y) ☐ (N).

******* If "Yes" go to 3. *******

2. Would you recycle if it were offered to you at home? ☐ (Y) ☐ (N).

***** Go to 6. *****

3. Do other members of your family recycle at home? ____ (Y) ____ (N)

***** If "No" on #1 and #3, go to 6. *****

5. How often do you do the following AT HOME?

- (1) Use the unused side of paper for notes and messages
- (2) Recycle newspapers
- (3) Recycle paper/paperboard
- (4) Recycle aluminum cans
- (5) Recycle glass bottles/cans
- (6) Recycle plastic bottles
- (7) Anything else: _____

Regularly	Occasionally	Never

6. The following is a list of statements pertaining to recycling activities. The range of responses are 1) Strongly agree. 2) Agree. 3) Neither agree nor disagree, 4) Disagree, and 5) Strongly disagree. Please respond to what extent the following statements are true for you:

- (1) The cost of starting up a recycling program prevents some small businesses and property managers from recycling.
- (2) Keeping employees motivated to recycle requires incentives such as gifts, awards, or money.
- (3) Our company cannot afford to take the time to train our employees how to recycle.
- (4) Businesses in a multi-tenant building would benefit more if they collected their materials together in one central location.
- (5) Locking recycling bins or placing them in a secure area reduces contamination and theft.
- (7) The monthly recycling fees charged by recycling haulers discourages small businesses and property managers from recycling.
- (8) The janitorial service currently empties the waste receptacles; therefore, transporting recyclables to a central location can be integrated into their job function.

(1) Strongly Agree	(2) Agree	(3) Neither Agree Nor Disagree	(4) Disagree	(5) Strongly Disagree

- (9) The additional time necessary for janitors to collect the recyclable materials along with the solid waste materials is minimal.
- (10) City governments need to develop programs which encourage businesses to recycle and buy-recycled products.
- (11) Recycling is an essential part of our way of life.
- (12) Recycling only benefits those in the recycling business.
- (13) I do not want to be bothered with recycling while I am at work.
- (14) The two most common materials generated by our employees are paper and cardboard (e.g. fibers).
- (15) Property managers need to provide an incentive to encourage tenants to recycle.
- (16) Lack of space for the recycling bins prevents small businesses and property managers from recycling.
- (17) Collecting mixed materials (e.g. mixed paper) makes it easier for small businesses to recycle.
- (18) Most small businesses do not generate enough materials to make recycling economically viable.
- (19) The recycling focus should be towards large businesses and governments because they generate more waste.

7. The following is a list of statements pertaining to buy-recycled activities. The range of responses are 1) Strongly agree, 2) Agree, 3) Neither agree nor disagree, 4) Disagree, and 5) Strongly disagree. Please respond to what extent the following statements are true for you:

- (1) If two items are of the same quality, my company will buy the least expensive item.
- (2) More information about where to buy-recycled-content products should be made available.

(1) Strongly Agree	(2) Agree	(3) Neither Agree Nor Disagree	(4) Disagree	(5) Strongly Disagree

(3) We do not buy-recycled-content products because they are not available at local office supply stores, such as Staples or Office Depot.

(4) Products made from recycled materials have a higher quality than those made from new materials.

(5) Our company buys recycled content products regardless of cost.

(6) Buying recycled products is important because it is part of the recycling loop.

8. Did you know that as of July, 1996, all businesses in San Jose are paying a source reduction and recycling fee of \$1.77 per cubic yard of waste collected by solid waste collector?

___ (Y) ___ (N) ___ Did not know.

8a. On a scale of 1 to 10, would this fee motivate your company to reduce your waste?

No
Influence

Moderate
Influence

High
Influence

0

5

10

--	--	--	--	--	--	--	--	--	--

8b. Did you know that as of July, 1996, all commercial solid waste collectors pay a franchise fee of \$1.64 per cubic yard collected?

___ (Y) ___ (N) ___ Did not know.

8c. On a scale of 1 to 10, do you think that this fee of \$1.64 per cubic yard will motivate solid waste collectors to increase their focus on small business recycling?

No
Influence

Moderate
Influence

High
Influence

0

5

10

--	--	--	--	--	--	--	--	--	--

9. If you had to pay for your recycling services, what is the average amount you would be willing to pay?

___ Less than \$10 per month

___ More than \$20.01 per month

___ How much?

___ Between \$10.01 and \$20 per month

___ None

10. The following question ask for the amount of satisfaction or enjoyment you get from the activity given. The range of possible responses are 1) A great deal, 2) Quite a bit, 3) Some, 4) A little and 5) None. Please respond by indicating how much satisfaction or enjoyment you get from the following activities:

	(1) A Great Deal	(2) Quite A Bit	(3) Some	(4) A Little	(5) None
(1) Teaching others about the benefits of reducing waste.					

11. The following is a list of business-related items. To what extent are the following business-related items true for you. The range of responses are 1) Strongly agree, 2) Agree, 3) Neither agree nor disagree, 4) Disagree and 5) Strongly disagree.

	(1) Strongly Agree	(2) Agree	(3) Neither Agree Nor Disagree	(4) Disagree	(5) Strongly Disagree
(1) Business or trade associations have helped my business.					
(2) Recycling increases employee morale.					
(3) Our customers appreciate our efforts to recycle.					
(4) Our customers do not even know we are recycling.					
(5) The activities of our competitors play an important role in our business activities.					
(6) Recycling haulers should pay companies for the recyclable materials they collect.					
(7) Recycling haulers should charge for their services.					
(8) Our company has a good neighbor relationship with all of the other tenants.					
(9) All sensitive documents should be shredded before it is recycled.					
(10) Our company believes in keeping all administration-related costs under strict control.					
(11) Businesses should be charged disposal rates based upon the amount of waste they generated..					
(12) The Janitorial Staff can collect the recyclable materials from our work area and transport them to the common recycling bin.					

12. The following is a list of work-related experiences. The range of responses are 1) Not at all bothersome, 2) Somewhat bothersome, 3) Moderately bothersome, 4) Very bothersome, and 5) Extremely bothersome. Please indicate how bothersome each of the following is to you:

	(1) Not At All Bother- some	(2) Some- what Bother- some	(3) Moderately Bother-some	(4) Very Bother- some	(5) Extremely Bother-some
(1) Service vehicles which block parking spaces.					
(2) Theft of recyclable materials.					
(3) Sharing recycling bins with the other tenants.					
(4) Distance between the work areas and the recycling bins.					

End.

Thank you for participating in this important study. Should you have any comments or questions, please do not hesitate to contact me at 510-797-6103.

School of Social Science * Department of Environmental Studies
One Washington Square * San Jose, California 95192

PROPERTY MANAGER SURVEY

Principal Investigator: Mellicent deJesus Fraticelli, MS

Title: "Barriers to Small Business Recycling and Buy-Recycled Programs in a Multi-tenant Building"

My name is Mellicent deJesus Fraticelli and I am a graduate student at San Jose State University. I am conducting research regarding small business recycling and buy-recycled programs in a multi-tenant building. The survey is intended to assess the views of business owners, property managers, janitorial service managers, and recycling hauler managers concerning their company's attitudes and opinions regarding recycling and recycled-content products. The findings of this and subsequent analyses will contribute to the understanding of business recycling and buy-recycled products programs.

Your company was randomly selected from the list of all businesses operating in the City of San Jose. Would you consent to participate in this study? The survey should take approximately 10 minutes to complete. Be assured that all individual responses will be kept strictly confidential. All data will be key-punched for statistical analysis by research staff and respondents will not be identified individually when the results are reported. The emphasis of this research is on group profiles rather than on individual responses. If there is any question that does not apply to your situation, or are unable or don't want to answer, just skip the question and continue on to the next question.

1. The data collected will provide greater understanding of small business recycling and buy-recycled products programs.
2. You understand that the results of the study may be published but that no real names will be used or any information that may identify you may be used.
3. Should there be any questions about the study or should you have any complaints, you may call Dr. Anne Lawrence at 408-924-3586 Graduate Advisor or Dr. Les Rowntree at 408-924-5487 Environmental Studies Department Chair. Questions or complaints about research, subject's rights, or research related injury may be presented to Dr. Serena Stanford, Associate Academic Vice President for Graduate Studies and Research at 408-924-2480.
4. This consent is given voluntarily. You understand that you may refuse to participate at any time and am free to withdraw from the study at any time without prejudice to your relations with San Jose State University or any participating institution.

I will contact you in one week by phone to determine your participatory status.

Subject's Name or Initials and Title

Date

There are two parts to the survey. Part A focuses on demographical information. Part B focuses on your company's position on recycling and recycled-content products.

Part A: Demographical Questions

4. Number of employees: _____ 4a. Age of Company: _____ yrs

5. What is employee turnover rate?
 _____ (low - 5 or more yrs) _____ (med - 2 to 5 yrs)
 _____ (high - less than 1 yr)

6. What percentage of employees are _____ (Female) _____ (Male)?

7. Is the owner/highest level manager _____ (Female) or _____ (Male)?

8. Identify all the sizes of the buildings which you manage.
 _____ Less than 5,000 sq ft _____ Between 100,001 and 500,000 sq ft
 _____ Between 5,000 and 10,000 sq ft _____ Greater than 500,000 sq ft
 _____ Between 10,001 and 100,000 sq ft

9. Are tenants responsible for their own waste hauling or is it included in the lease?
 _____ (own) _____ (lease)

***** If lease, skip to 10. If own, continue to 9a *****

9a. Do your leases include a "pass-through clause" stating that the utility, water and garbage charges incurred by tenants above some predetermined amount will be "passed on" to the tenants? _____ (Y)
 _____ (N)

10. Do you contract with single waste hauler for all properties? _____ (Y) _____ (N)

10a. Please identify hauler(s). _____

11. What is the average cost of your waste service in cu yd/month for the different size of buildings that you manage?

_____ Less than 5,000 sq ft
 _____ Between 5,000 and 10,000 sq ft
 _____ Between 10,001 and 100,000 sq ft
 _____ Between 100,001 and 500,000 sq ft
 _____ Greater than 500,000 sq ft

12. What types of waste are generated by your tenants and what percent does each type represent?

_____ toner cartridges	_____ %	_____ aluminum	_____ %
_____ mixed computer paper	_____ %	_____ glass bottles	_____ %
_____ cardboard	_____ %	_____ newspapers	_____ %
_____ packing material (peanuts)	_____ %	_____ white paper	_____ %
_____ other	_____ %	_____ Don't Know	

(For example, white paper may represent 60% of the waste generated by your tenants, while cardboard represents 30%, aluminum represents 5% and packing material the other 5%.)

12a. Would you like an audit of the waste generated on your properties?
____ (Y) ____ (N)

13. Do you belong to a trade or business organization? ____ (Y) ____ (N)

**** If NO, go to 14; if YES, go to 13a ****

13a. If yes, to which organization(s) do you belong? _____

13b. What types of services do they provide?

____ Financial Advise	____ Mentoring
____ Market Info	____ Legal Advise (Laws/Regulations)
____ Competitive Information	____ Contacts/Networking
____ Technical Info	____ Other _____

14. Are there recycling programs in any of the buildings you manage? ____ (Y) ____ (N) ____ Don't know

***** If yes, skip to 15. If no, continue to 14a. *****

14a. Have tenants asked for a recycling program? ____ (Y) ____ (N)
____ Few (20% or less) ____ Many (20% to 50%) ____ A Lot (more than 50%)

***** Go to 18 *****

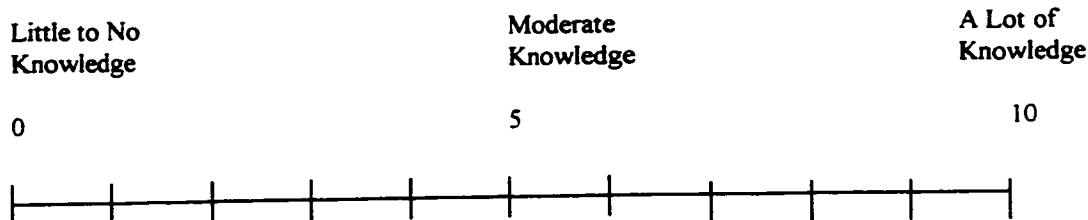
15. Does your company receive any benefits from the buildings with a recycling program?
____ (Y) ____ (N)

15a. Why were recycling program started?

____ Employees started programs	____ Tenants started programs
____ Right thing to do	____ Reduce operating costs
____ Competitors do it	____ Other _____

15b. What is the title of the person responsible for the recycling program? _____
Do they have full management support? ____ (Y) ____ (N)

15c. On a scale of 1 to 10, how would you rank your company's level of awareness and knowledge on the topic of garbage, landfills, recycling, and so forth?



15d. On a scale of 1 to 10, how would you rank your level of active participation in recycling related activities?

Little to No Activity	Moderate Activity	A Lot of Activity
0	5	10

15e. Regarding your level of awareness and knowledge on recycling, where do you get your information and exposure; what are your sources?

<input type="checkbox"/> City provided literature	<input type="checkbox"/> Colleagues/Trade Journals	<input type="checkbox"/> Media ads
<input type="checkbox"/> Competitors	<input type="checkbox"/> Friends & family	<input type="checkbox"/> Earth Day events
<input type="checkbox"/> Other _____		

16. Are recycling programs done collectively by all tenants or by each individual business?

☐ Collectively ☐ Individual ☐ Both

***** If done collectively, continue to 16a. If done individually, go to 18 *****

16a. Name of recycling hauler(s) where recycling is done collectively. _____

16b. What percentage of all tenants recycle? % ☐ Don't know

16c. When recycling program(s) started, who helped to educate your tenants?

<input type="checkbox"/> Recycler/Hauler	<input type="checkbox"/> City provided materials	<input type="checkbox"/> Tenant meetings
<input type="checkbox"/> Own materials	<input type="checkbox"/> Business/trade organization	<input type="checkbox"/> No Info, just did it
<input type="checkbox"/> Other _____		

16d. What items are recycled?

<input type="checkbox"/> toner cartridges	<input type="text"/> %	<input type="checkbox"/> aluminum	<input type="text"/> %
<input type="checkbox"/> mixed computer paper	<input type="text"/> %	<input type="checkbox"/> glass bottles	<input type="text"/> %
<input type="checkbox"/> cardboard	<input type="text"/> %	<input type="checkbox"/> newspapers	<input type="text"/> %
<input type="checkbox"/> packing material (peanuts)	<input type="text"/> %	<input type="checkbox"/> white paper	<input type="text"/> %
<input type="checkbox"/> other	<input type="text"/> %		

(For example, white paper may represent 50% of the materials recycled by your tenants, while cardboard represents 40%, aluminum represents 5% and packing material the other 5%.)

16e. Is there any promotional, educational, or incentive program in place?

☐ (Y) ☐ (N) ☐ Don't know

***** If NO, skip to 16f *****

If yes, what programs are available?

☐ Newsletters
☐ Bulletins
☐ Other

☐ Giveaways (mugs, T-shirts)
☐ Monetary incentives

☐ Gift Certificates

16f. What is the title of the individual responsible for the recycling program? _____

Do they have full management support? ☐ (Y) ☐ (N)

16g. The following are scenarios of how recyclable materials can be collected. Identify all scenario best fits your program(s).

☐ Tenants collect recyclables at their workstation while another employee brings them home or to a recycling center.

☐ Tenants collect at workstation and then transport them to a central collection area located within the tenant's leased property. Recycling hauler collects all recyclables individually from each tenant.

☐ Tenants collect at workstation and janitorial service transports them to a central collection area located within the tenant's leased property. Recycling hauler collects all recyclables individually from each tenant.

☐ Tenants collect at workstation and janitorial service transports them to a single central collection area outside of the tenant's leased property but within the building property. Recycling hauler picks up recyclables from single central location.

☐ Other _____

18. Do you include recycling or waste reduction information in new tenant orientations? ☐ (Y) ☐ (N)

18a. Do you provide any incentive for your tenants to recycle or reduce their waste? ☐ (Y) ☐ (N)

***** If NO, skip to 19 *****

18b. Describe the incentive(s) you provide. _____

19. On a scale of 1 to 10, how would you rank your company's knowledge of products made from recycled materials (e.g. where to buy them, how they compare to products made with new materials, comparisons on quality, price and availability)?

Little to No
Knowledge

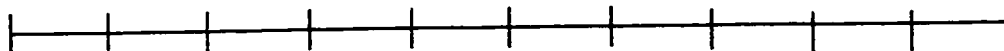
Moderate
Knowledge

A Lot of
Knowledge

0

5

10



19a. On a scale of 1 to 10, how would you rank your company's level of active participation in buying products made with recycled materials?

Little to No Activity	Moderate Activity	A Lot of Activity
0	5	10

19b. Does your company purchase recycled content products for your own use?
 ___ (Y) ___ (N)

***** If YES, skip to 20 *****

19c. Have employees asked for recycled content products? ___ (Y) ___ (N)
 If yes, how many (in percentages)?
 ___ Few (20% or less) ___ A Lot (more than 50%)
 ___ Many (20% to 50%)

**** Go to 21 ****

20 Why was buy-recycled program started?
 ___ Right thing to do ___ Reduce operating costs
 ___ Competitors do it ___ Other _____

20a. Who initiated buy-recycled program?
 ___ Upper Manager/Owner ___ Non-management personnel
 ___ Purchasing Officer ___ Don't know.

20b. What is their title of the individual responsible for the buy-recycled program? _____
 Do they have upper management support? ___ (Y) ___ (N)

20b. What recycled-content products are purchased?

___ white paper	% _____	___ manila folders	% _____
___ colored paper	% _____	___ hanging folders	% _____
___ toner cartridges	% _____	___ packing material	% _____
___ Bathroom/Kitchen supplies	% _____	_____ other	% _____

21. Does your company purchase recycled content products for your tenants?
 ___ (Y) ___ (N)

***** If NO, go to 22 *****

22. Would your company be interested in participating in a cooperative to buy-recycled content products?
 _____ (Y) _____ (N)

Part B: Attitude and Opinion Survey Questions

5. How often do you do the following AT HOME?

- [illegible]

- | (1) | (2) | (3) | (4) | (5) |
|----------|-------|-----------|----------|----------|
| Strongly | Agree | Neither | Disagree | Strongly |
| Agree | | Agree Nor | | Disagree |
| | | Disagree | | |

- (1) The cost of starting up a recycling program prevents some small businesses and property managers from recycling.
- (2) Keeping tenants motivated to recycle requires incentives such as gifts, awards, or money.

Agree		Disagree		Strongly

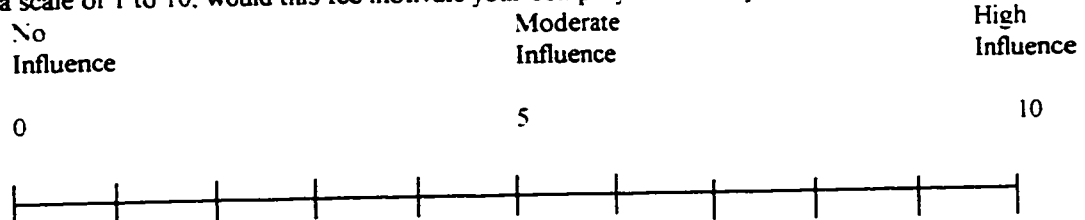
7. The following is a list of statements pertaining to buy-recycled activities. The range of responses are 1) Strongly agree, 2) Agree, 3) Neither agree nor disagree, 4) Disagree, and 5) Strongly disagree. Please respond to what extent the following statements are true for you:

- (1) If two items are of the same quality, my company will buy the least expensive item.
- (2) More information about where to buy-recycled-content products should be made available.
- (3) We do not buy-recycled-content products because they are not available at local office supply stores, such as Staples or Office Depot.
- (4) Products made from recycled materials have a higher quality than those made from new materials.
- (5) Our company buys recycled content products regardless of cost.
- (6) Buying recycled products is important because it is part of the recycling loop.

(1) Strongly Agree	(2) Agree	(3) Neither Agree Nor Disagree	(4) Disagree	(5) Strongly Disagree

8. Did you know that as of July, 1996, all businesses in San Jose are paying a source reduction and recycling fee of \$1.77 per cubic yard of waste collected by solid waste collector?
 ____ (Y) ____ (N) ____ Did not know.

8a. On a scale of 1 to 10, would this fee motivate your company to reduce your waste?



8b. Did you know that as of July, 1996, all commercial solid waste collectors pay a franchise fee of \$1.64 per cubic yard collected?
 ____ (Y) ____ (N) ____ Did not know.

8c. On a scale of 1 to 10, do you think that this fee of \$1.64 per cubic yard will motivate solid waste collectors to increase their focus on small business recycling?

No Influence	Moderate Influence	High Influence
0	5	10

9. If you had to pay for your recycling services, what is the average amount you would be willing to pay?
 _____ Less than \$10 per month _____ More than \$20.01 per month _____ How much?
 _____ Between \$10.01 and \$20 per month _____ None

10. The following question ask for the amount of satisfaction or enjoyment you get from the activity given
 The range of possible responses are 1) A great deal, 2) Quite a bit, 3) Some, 4) A little and 5) None. Please
 respond by indicating how much satisfaction or enjoyment you get from the following activities

	(1) A Great Deal	(2) Quite A Bit	(3) Some	(4) A Little	(5) None
(1) Teaching others about the benefits of reducing waste.					

11. The following is a list of business-related items. To what extent are the following business-related items true for you. The range of responses are 1) Strongly agree, 2) Agree, 3) Neither agree nor disagree, 4) Disagree and 5) Strongly disagree

	(1) Strongly Agree	(2) Agree	(3) Neither Agree Nor Disagree	(4) Disagree	(5) Strongly Disagree
(1) Business or trade associations have helped my business.					
(2) Recycling increases tenant morale.					
(3) Our tenants appreciate our efforts to recycle.					
(5) The activities of our competitors play an important role in our business activities.					
(6) Recycling haulers should pay companies for the recyclable materials they collect.					
(7) Recycling haulers should charge for their services.					

- (9) All sensitive documents should be shredded before it is recycled.
- (11) Businesses who pay a waste collection fee based upon volume are more likely to recycle than those who pay a flat fee.
- (12) The Janitorial Staff can collect the recyclable materials from our work area and transport them to the common recycling bin.

12. The following is a list of work-related experiences. The range of responses are 1) Not at all bothersome, 2) Somewhat bothersome, 3) Moderately bothersome, 4) Very bothersome, and 5) Extremely bothersome. Please indicate how bothersome each of the following is to you:

- | | | | | |
|---------------------------|-------------------------|---------------------------|---------------------|--------------------------|
| (1) Not At All Bothersome | (2) Somewhat Bothersome | (3) Moderately Bothersome | (4) Very Bothersome | (5) Extremely Bothersome |
|---------------------------|-------------------------|---------------------------|---------------------|--------------------------|

- (1) Service vehicles which block parking spaces.
- (2) Theft of recyclable materials.
- (3) Maintaining building-wide recycling programs.
- (4) Distance between the work areas and the recycling bins.

End.

Thank you for participating in this important study. Should you have any comments or questions, please do not hesitate to contact me at 510-797-6103.

School of Social Science * Department of Environmental Studies
One Washington Square * San Jose, California 95192

JANITORIAL SERVICE AND RECYCLING HAULER SURVEY

Principal Investigator: Mellicent deJesus Fraticelli, MS

Title: "Barriers to Small Business Recycling and Buy-Recycled Programs in a Multi-tenant Building"

My name is Mellicent deJesus Fraticelli and I am a graduate student at San Jose State University. I am conducting research regarding small business recycling and buy-recycled programs in a multi-tenant building. The survey is intended to assess the views of business owners, property managers, janitorial service managers, and recycling hauler managers concerning their company's attitudes and opinions regarding recycling and recycled-content products. The findings of this and subsequent analyses will contribute to the understanding of business recycling and buy-recycled products programs.

Your company was randomly selected from the list of all businesses operating in the City of San Jose. Would you consent to participate in this study? The survey should take approximately 10 minutes to complete. Be assured that all individual responses will be kept strictly confidential. All data will be key-punched for statistical analysis by research staff and respondents will not be identified individually when the results are reported. The emphasis of this research is on group profiles rather than on individual responses. If there is any question that does not apply to your situation, or are unable or don't want to answer, just skip the question and continue on to the next question.

1. The data collected will provide greater understanding of small business recycling and buy-recycled products programs.
2. You understand that the results of the study may be published but that no real names will be used or any information that may identify you may be used.
3. Should there be any questions about the study or should you have any complaints, you may call Dr. Anne Lawrence at 408-924-3586 Graduate Advisor or Dr. Les Rowntree at 408-924-5487 Environmental Studies Department Chair. Questions or complaints about research, subject's rights, or research related injury may be presented to Dr. Serena Stanford, Associate Academic Vice President for Graduate Studies and Research at 408-924-2480.
4. This consent is given voluntarily. You understand that you may refuse to participate at any time and am free to withdraw from the study at any time without prejudice to your relations with San Jose State University or any participating institution.

I will contact you in one week by phone to determine your participatory status.

Subject's Name or Initials and Title

Date

There are two parts to the survey. Part A focuses on demographical information. Part B focuses on your company's position on recycling and recycled-content products.

Part A: Demographical Questions

Instructions: Both questions apply to all Both subgroups: Janitorial Service (JS) and Recycling Hauler (RH)

Both Subgroups:

1. Number of employees: _____ 1a. Age of Company: _____ yrs

2. What is employee turnover rate?

_____ (low - 5 or more yrs)

_____ (med - 2 to 5 yrs)

_____ (high - less than 1 yr)

JS Only:

5. In buildings with multiple tenants, can you tell me who are the waste hauler(s)? _____

6. What types of waste are typically generated by your clients at multi-tenant buildings?

_____ toner cartridges	_____ %	_____ aluminum	_____ %
_____ mixed computer paper	_____ %	_____ glass bottles	_____ %
_____ cardboard	_____ %	_____ newspapers	_____ %
_____ packing material (peanuts)	_____ %	_____ white paper	_____ %
_____ other	_____ %	_____ Don't know	

(For example, white paper may represent 60% of the waste generated by your clients, while cardboard represents 30%, aluminum represents 5% and packing material the other 5%.)

6a. Have you performed a waste audit for your clients? _____ (Y) _____ (N)

Both Subgroups:

7. Do you belong to a trade or business organization? _____ (Y) _____ (N)

**** If NO. JS go to 8 and RH go to 17. If YES, continue on 7a ****

7a. If yes, to which organization(s) do you belong? _____

7c. What types of services do they provide?

_____ Financial Advise	_____ Mentoring
_____ Market Info	_____ Legal Advise (Laws/Regulations)
_____ Competitive Information	_____ Contacts/Networking
_____ Technical Info	_____ Other _____

***** JS Only — RH go to 17 *****

8. In buildings with multiple tenants, do you normally contract with individual businesses or the property manager?

☐ Individual business ☐ Property Manager

8a. Do you normally provide janitorial services to all tenants in the buildings or just a few?

☐ All tenants ☐ Few businesses in the building

8b. Do you have clients with 100 or less employees? ☐ (Y) ☐ (N)

8c. Do you provide recycling collection services to your clients? ☐ (Y) ☐ (N)

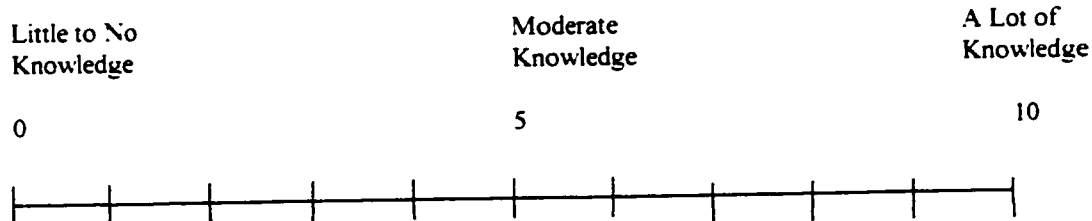
8d. If yes, please describe your service? _____

9. Does your company receive any economic benefits from providing recycling collection services?
☐ (Y) ☐ (N) ☐ Part of Contract

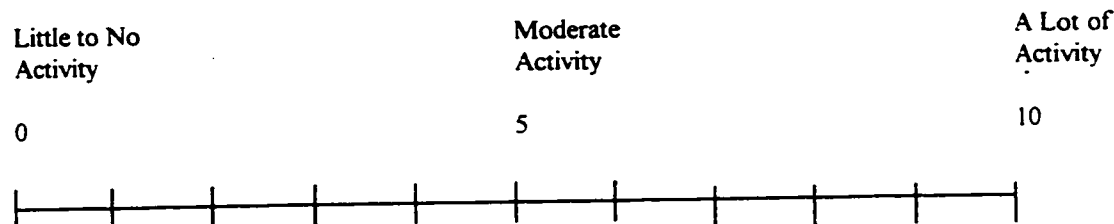
9a. Why are you providing this service?

☐ Right thing to do ☐ Employees wanted it
☐ Tenants wanted it ☐ Property Manager wanted it
☐ Competition ☐ Other _____

9b. On a scale of 1 to 10, how would you rank your company's level of awareness and knowledge on the topic of garbage, landfills, recycling, and so forth?



9c. On a scale of 1 to 10, how would you rank your company's level of active participation in recycling related activities?



9d. Regarding your level of awareness and knowledge on recycling, where do you get your information and exposure; what are your sources?

☐ City provided literature ☐ Colleagues/Trade Journals ☐ Media ads
☐ Competitors ☐ Friends & family ☐ Earth Day events
☐ Other _____

9f. Are recycling bins usually locked?

☐ Never locked

☐ About 50% locked

☐ More than 50% are locked

10 Below is a list of items. can you identify the items recycled by your clients and approximately how much each items represents in total volume?

<input type="checkbox"/> toner cartridges	<input type="checkbox"/> %	<input type="checkbox"/> aluminum	<input type="checkbox"/> %
<input type="checkbox"/> mixed computer paper	<input type="checkbox"/> %	<input type="checkbox"/> glass bottles	<input type="checkbox"/> %
<input type="checkbox"/> cardboard	<input type="checkbox"/> %	<input type="checkbox"/> newspapers	<input type="checkbox"/> %
<input type="checkbox"/> packing material (peanuts)	<input type="checkbox"/> %	<input type="checkbox"/> white paper	<input type="checkbox"/> %
<input type="checkbox"/> other	<input type="checkbox"/> %		

(For example, white paper may represent 50% of the waste generated by your clients, while cardboard represents 40%, aluminum represents 5% and packing material the other 5%.)

10a. Are the following programs available to tenants?

☐ promotional

☐ educational

☐ incentive

☐ Don't know

10b. If yes, to 10a what programs are available?

☐ Newsletters

☐ Giveaways (mugs, T-shirts)

☐ Gift Certificates

☐ Bulletins

☐ Monetary incentives

☐ Recognition

☐ Other _____

10c. Who manages the recycling program?

☐ Tenant

☐ Property Manager

☐ Our company

11. How are recyclable materials collected? For example, do you transport the materials from each business to a central collection area where the recycling hauler then picks up the materials? _____

12. Have businesses approached you requesting assistance in their recycling program? ☐ (Y) ☐ (N)

12a. Have property managers approached you requesting assistance in their recycling program? ☐ (Y) ☐ (N)

12b. Do you think that the janitorial service community can play an important role in recycling programs for multi-tenant buildings? ☐ (Y) ☐ (N)

13. Does your service contract include language about providing recycling collection services? ☐ (Y) ☐ (N)

13a. Do you help educate new tenants about the recycling program? ☐ (Y) ☐ (N)

14. On a scale of 1 to 10, how would you rank your company's knowledge of products made from recycled materials (e.g. where to buy them, how they compare to products made with new materials, comparisons on quality, price and availability)?

Little to No Knowledge	Moderate Knowledge	A Lot of Knowledge
0	5	10

14a. On a scale of 1 to 10, how would you rank your company's level of active participation in buying products made with recycled materials?

Little to No Activity	Moderate Activity	A Lot of Activity
0	5	10

14b. Do you buy products made with recycled materials for the use of your clients? ____ (Y) ____ (N)

**** If YES, Skip to 15 ****

14c. Have any of your clients asked for recycled content products? ____ (Y) ____ (N)

If yes, how many (in percentages)?

____ Few (20% or less)

____ A Lot (more than 50%)

____ Many (20% to 50%)

**** Go to Part B ****

15. What recycled-content products do you provide for your clients?

____ Bathroom supplies
____ Kitchen/cafeteria supplies

____ Other _____

15b. Why do you provide recycled products?

____ Right thing to do

____ Reduce operating costs

____ Competitors do it

____ Other _____

***** JS go to Part B *****

RH Only:

17. Do you provide recycling services to small businesses? ____ (Y) ____ (N)

17a. Do you provide waste audits for small businesses? ____ (Y) ____ (N)

17b. Do you have personnel dedicated to help small businesses recycle? ____ (Y) ____ (N)

17c. Approximately how many small business recycling programs do you have?

☐ Less than 10 ☐ Between 11 - 50 ☐ Between 50 - 200
☐ Between 200 - 500 ☐ More than 500

17d. What types of materials do you collect from small businesses and how much are collected?

<input type="checkbox"/> toner cartridges	<input type="checkbox"/> %	<input type="checkbox"/> aluminum	<input type="checkbox"/> %
<input type="checkbox"/> mixed paper	<input type="checkbox"/> %	<input type="checkbox"/> glass bottles	<input type="checkbox"/> %
<input type="checkbox"/> cardboard	<input type="checkbox"/> %	<input type="checkbox"/> newspapers	<input type="checkbox"/> %
<input type="checkbox"/> packing material (peanuts)	<input type="checkbox"/> %	<input type="checkbox"/> white paper	<input type="checkbox"/> %
<input type="checkbox"/> other	<input type="checkbox"/> %		

(For example, white paper may represent 50% of the waste generated by your clients, while cardboard represents 40%, aluminum represents 5% and packing material the other 5%.)

17e. Do you provide any promotional, educational, or incentive programs to small businesses, property managers and janitorial services?

☐ (Y) ☐ (N) ☐ Don't know

***** If NO or Don't know, skip to 18 *****

17f. To solicit new clients, please rate the following items in terms of your success, 1 = most successful.

<input type="checkbox"/> Cold calls or direct mail	<input type="checkbox"/> Attending trade shows	<input type="checkbox"/> Ad in phone book
<input type="checkbox"/> Ads in newspapers, magazines, etc.	<input type="checkbox"/> Attending community events.	
<input type="checkbox"/> Other		

18. How are recyclable materials from businesses in multi-tenant buildings collected? _____

19. What type of recycling programs do you offer an individual small business?

<input type="checkbox"/> White paper only	<input type="checkbox"/> Glass Only	<input type="checkbox"/> Mixed glass and plastic
<input type="checkbox"/> All types of paper	<input type="checkbox"/> #1 and #2 Plastic Only	<input type="checkbox"/> Mixed paper, no envelopes
<input type="checkbox"/> Packaging peanuts Only	<input type="checkbox"/> Cardboard Only	<input type="checkbox"/> Mixed paper and Mixed glass and plastic
<input type="checkbox"/> Clean-up days	<input type="checkbox"/> Customized	<input type="checkbox"/> Other _____

21. On a scale of 1 to 10, how would you rank your company's knowledge of products made from recycled materials (e.g. where to buy them, how they compare to products made with new materials, comparisons on quality, price and availability)?

Little to No
Knowledge

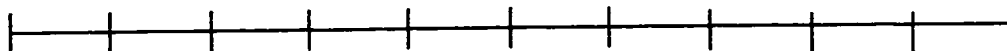
Moderate
Knowledge

A Lot of
Knowledge

0

5

10



21a. On a scale of 1 to 10, how would you rank your company's level of active participation in buying products made with recycled materials?

Little to No
Activity

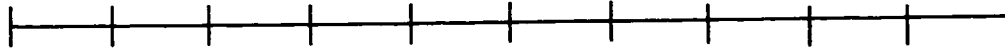
Moderate
Activity

A Lot of
Activity

0

5

10



21b. Does the company purchase recycled content products for your own use? ____ (Y) ____ (N)

21c. What recycled-content products are purchased?

____ white paper	% _____	____ manila folders	% _____
____ colored paper	% _____	____ hanging folders	% _____
____ toner cartridges	% _____	____ packing material	% _____
____ Bathroom/Kitchen supplies	% _____	____ other	% _____

(For example, 50% of the white paper your company purchases is made from recycled materials and the other 50% is made completely of virgin materials.)

***** RH go to Part B *****

Part B: Attitude and Opinion Survey Questions

6. The following is a list of statements pertaining to recycling activities. The range of responses are 1) Strongly agree, 2) Agree, 3) Neither agree nor disagree, 4) Disagree, and 5) Strongly disagree. Please respond to what extent the following statements are true for you:

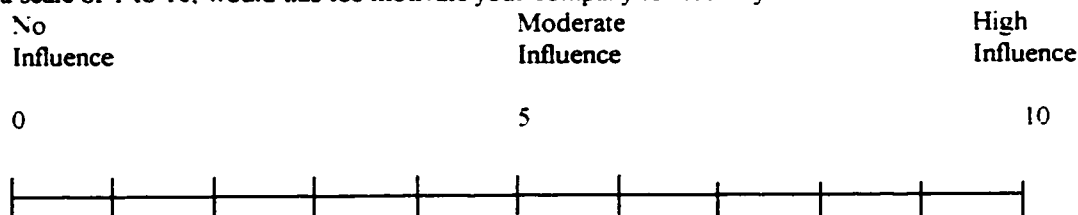
	(1) Strongly Agree	(2) Agree	(3) Neither Agree Nor Disagree	(4) Disagree	(5) Strongly Disagree
(1) The cost of starting up a recycling program prevents some small businesses and property managers from recycling.					
(2) Keeping clients motivated to recycle requires incentives such as gifts, awards, or money.					
(3) Our company cannot afford to take the time to train our clients how to recycle.					
(4) Businesses in a multi-tenant building would benefit more if they collected their materials together in one central location.					
(5) Locking recycling bins or placing them in a secure area reduces contamination and theft.					

7. The following is a list of statements pertaining to buy-recycled activities. The range of responses are 1) Strongly agree, 2) Agree, 3) Neither agree nor disagree, 4) Disagree, and 5) Strongly disagree. Please respond to what extent the following statements are true for you:

	(1) Strongly Agree	(2) Agree	(3) Neither Agree Nor Disagree	(4) Disagree	(5) Strongly Disagree
(1) If two items are of the same quality, my company will buy the least expensive item.					
(2) More information about where to buy-recycled-content products should be made available.					
(4) Products made from recycled materials have a higher quality than those made from new materials.					
(5) Our company buys recycled content products regardless of cost.					
(6) Buying recycled products is important because it is part of the recycling loop.					

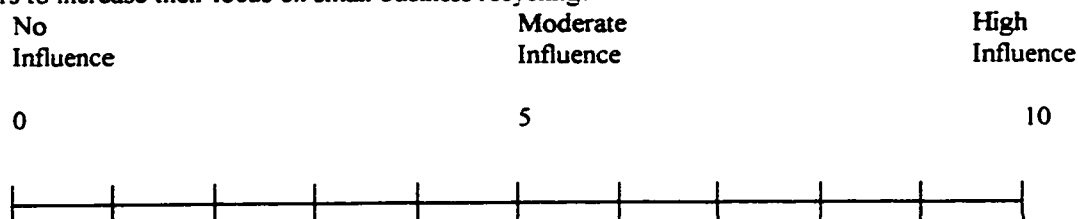
8. Did you know that as of July, 1996, all businesses in San Jose are paying a source reduction and recycling fee of \$1.77 per cubic yard of waste collected by solid waste collector?
 _____ (Y) _____ (N) _____ Did not know.

8a. On a scale of 1 to 10, would this fee motivate your company to reduce your waste?



8b. Did you know that as of July, 1996, all commercial solid waste collectors pay a franchise fee of \$1.64 per cubic yard collected?
(Y) _____ (N) _____ Did not know.

8c. On a scale of 1 to 10, do you think that this fee of \$1.64 per cubic yard will motivate solid waste collectors to increase their focus on small business recycling?



9. If you had to pay for your recycling services, what is the average amount you would be willing to pay?
 _____ Less than \$10 per month _____ More than \$20.01 per month _____ How much?
 _____ Between \$10.01 and \$20 per month _____ None

10. The following question ask for the amount of satisfaction or enjoyment you get from the activity given. The range of possible responses are 1) A great deal, 2) Quite a bit, 3) Some, 4) A little and 5) None. Please respond by indicating how much satisfaction or enjoyment you get from the following activities:

	(1) A Great Deal	(2) Quite A Bit	(3) Some	(4) A Little	(5) None
(1) Teaching others about the benefits of reducing waste.					

11. The following is a list of business-related items. To what extent are the following business-related items true for you. The range of responses are 1) Strongly agree, 2) Agree, 3) Neither agree nor disagree, 4) Disagree and 5) Strongly disagree.

	(1) Strongly Agree	(2) Agree	(3) Neither Agree Nor Disagree	(4) Disagree	(5) Strongly Disagree
(1) Business or trade associations have helped my business.					
(2) Recycling increases client morale.					
(3) Our clients appreciate our efforts to recycle.					
(5) The activities of our competitors play an important role in our business activities.					
(6) Recycling haulers should pay companies for the recyclable materials they collect.					
(7) Recycling haulers should charge for their services.					
(9) All sensitive documents should be shredded before it is recycled.					
(11) Businesses who pay a waste collection fee based upon volume are more likely to recycle than those who pay a flat fee.					
(12) The Janitorial Staff can collect the recyclable materials from tenants and transport them to the common recycling bin.					

12. The following is a list of work-related experiences. The range of responses are 1) Not at all bothersome, 2) Somewhat bothersome, 3) Moderately bothersome, 4) Very bothersome, and 5) Extremely bothersome. Please indicate how bothersome each of the following is to you:

	(1) Not At All Bother- some	(2) Some- what Bother- some	(3) Moderately Bother-some	(4) Very Bother- some	(5) Extremely Bother-some
(1) Service vehicles which block parking spaces.					
(2) Theft of recyclable materials.					
(4) Distance between the work areas and the recycling bins.					

End.

Thank you for participating in this important study. Should you have any comments or questions, please do not hesitate to contact me at 510-797-6103.

APPENDIX B SEMI-STRUCTURED PERSONAL INTERVIEW QUESTIONNAIRE

Due to differing emphasis, three questionnaires were developed to address issues specific to each business group. One survey was created for for the small business group, a second for the property manager group, and a third for the janitorial service and recycling hauler groups.

School of Social Science * Department of Environmental Studies
One Washington Square * San Jose, California 95192

SMALL BUSINESS INTERVIEW

Principal Investigator: Mellicent deJesus Fraticelli, MS

Title: "Barriers to Small Business Recycling and Buy-Recycled Programs in a Multi-tenant Building"

My name is Mellicent deJesus Fraticelli and I am a graduate student at San Jose State University. I am conducting research regarding small business recycling and buy-recycled programs in a multi-tenant building. The survey is intended to assess the views of business owners, property managers, janitorial service managers, and recycling hauler managers concerning their company's attitudes and opinions regarding recycling and recycled-content products. The findings of this and subsequent analyses will contribute to the understanding of business recycling and buy-recycled products programs.

You company was randomly selected from the list of all businesses operating in the City of San Jose. Would you consent to participate in this study? The survey should take approximately 10 minutes to complete. Be assured that all individual responses will be kept strictly confidential. All data will be key-punched for statistical analysis by research staff and respondents will not be identified individually when the results are reported. The emphasis of this research is on group profiles rather than on individual responses. If there is any questions that does not apply to your situation, or are unable or don't want to answer, just skip the question and continue on to the next question.

1. The data collected will provide greater understanding of small business recycling and buy-recycled products programs.
2. You understand that the results of the study may be published but that no real names will be used or any information that may identify you may be used.
3. Should there be any questions about the study or should you have any complaints, you may call Dr. Anne Lawrence at 408-924-3586 Graduate Advisor or Dr. Les Rowntree at 408-924-5487 Environmental Studies Department Chair. Questions or complaints about research, subject's rights, or research related injury may be presented to Dr. Serena Stanford, Associate Academic Vice President for Graduate Studies and Research at 408-924-2480.
4. This consent is given voluntarily. You understand that you may refuse to participate at any time and am free to withdraw from the study at any time without prejudice to your relations with San Jose State University or any participating institution.

I will contact you in one week by phone to determine your participatory status.

Subject's Name or Initials and Title

Date

There are two parts to the survey. Part A focuses on demographical information. Part B focuses on your company's position on recycling and recycled-content products.

Part A: Demographical Questions

3. Type of business:

____ Service

What type? _____

____ Retail/Wholesale

What type? _____

____ Manufacturing

What type? _____

4. Number of employees: _____

4a. Age of Company: _____ yrs

5. What is the employee turnover rate?

____ (low - 5 or more yrs)

____ (med - 2 to 5 yrs)

____ (high - less than 1 yr)

6. What percentage of the employees are ____ (Female) and ____ (Male)?

7. Is the owner/highest level manager ____ (Female) or ____ (Male)?

8. Is the company responsible for their own waste hauling service or is it included in the lease?
____ (own) ____ (lease)

***** If Lease, skip to Item 10 *****

9. Who is waste hauler? _____

9a. Approximately how much is paid/month for waste service? _____ cu yd/month

10. Does your commercial lease include a "pass-through clause" stating that all costs above some predetermined amount will be "passed on" to the tenants? ____ (Y) ____ (N)

If YES, how often does it occur and approximately how much is paid to cover this clause?

____ Monthly

____ Bi-monthly

____ Quarterly

____ cu yd/occurrence

11. What types of waste are generated on site and what percent does each type represent?

____ toner cartridges

____ %

____ aluminum

____ %

____ mixed paper

____ %

____ glass bottles

____ %

____ cardboard

____ %

____ white paper

____ %

____ packing material (peanuts)

____ %

____ Don't Know

____ other

____ %

(For example, white paper may represent 60% of the waste generated by your business office, while cardboard represents 30%, aluminum represents 5% and packing material the other 5%.)

11a. Would you like a waste audit? ____ (Y) ____ (N)

12. Do you belong to a trade or business organization? ____ (Y) ____ (N)

**** If NO, go to 13; if YES, go to 12a ****

12a. If yes, to which organization(s) do you belong? _____

12b. How long have you been a member? _____ yrs

12c. What types of services do they provide?

_____ Financial Advise	_____ Mentoring
_____ Market Info	_____ Legal Advise (Laws/Regulations)
_____ Competitive Information	_____ Contacts/Networking
_____ Technical Info	_____ Other _____

13 Is there a recycling program at work? ____ (Y) ____ (N)

***** If yes, skip to 14. If no, continue to 13a. *****

13a. Have employees asked for a recycling program? ____ (Y) ____ (N)

If yes, how many (in percentages)?

_____ Few (20% or less) _____ Many (20% to 50%) _____ A Lot (more than 50%)

***** Go to 16 *****

14. When did you begin recycling at work? _____ Month _____ Year _____ Don't Know

14a Why was recycling program started?

_____ Right thing to do	_____ Reduce operating costs
_____ Competitors do it	_____ Other _____

14b. Does your recycling program include all other tenants in your building?

_____ (Y) ____ (N)

14c. Who is your recycling hauler? _____

14d. How long has the recycling program been operational?

_____ yrs _____ months _____ Don't know

14e. What percentage of employees _____ % recycle? _____ Don't know

14f. When you began your program, who helped to educate your employees?

_____ Recycler/Hauler	_____ City provided materials	_____ Tenant meetings
_____ Own materials	_____ Business/trade organization	_____ No Info, just did it
_____ Other _____		

14g. What items are recycled?

_____ toner cartridges	_____ %	_____ aluminum	_____ %
_____ mixed computer paper	_____ %	_____ glass bottles	_____ %
_____ cardboard	_____ %	_____ newspapers	_____ %
_____ packing material (peanuts)	_____ %	_____ white paper	_____ %
_____ other	_____ %		

(For example, white paper may represent 50% of the materials recycled by your business office, while cardboard represents 40%, aluminum represents 5% and packing material the other 5%.)

15. Do you have any promotional, educational, or incentive program for your employees?

____ (Y) ____ (N) ____ Don't know

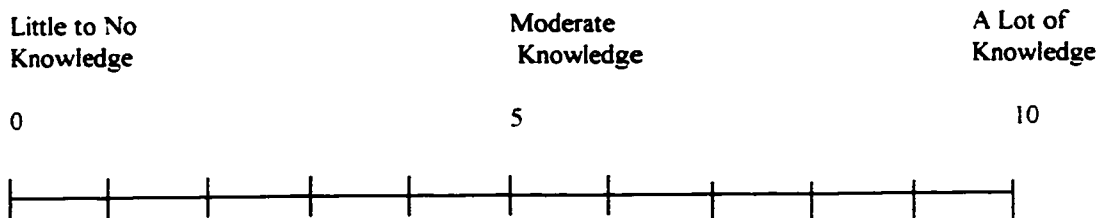
***** If NO, skip to 15b *****

15a. If yes, what programs are available?

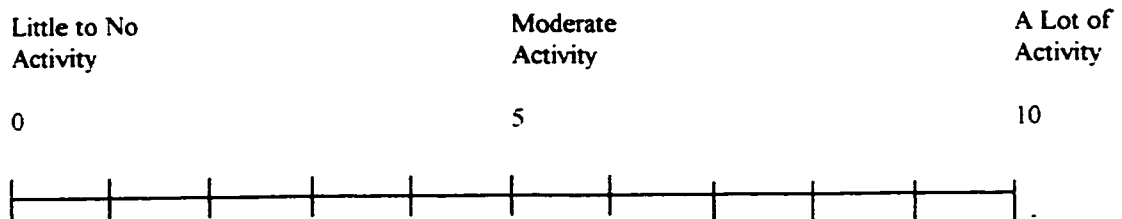
☐ Newsletters ☐ Giveaways (mugs, T-shirts) ☐ Gift Certificates
☐ Bulletins ☐ Monetary incentives
☐ Other _____

15b What is the title of the person responsible for the recycling program? _____
Do they have full management support? ____ (Y) ____ (N)

15c. On a scale of 1 to 10, how would you rank your level of awareness and knowledge on the topic of garbage, landfills, recycling, and so forth?



15d On a scale of 1 to 10, how would you rank your company's level of active participation in recycling related activities?



15e. Regarding your level of awareness and knowledge on recycling, where do you get your information and exposure; what are your sources?

☐ City provided literature ☐ Colleagues/Trade Journals ☐ Media ads
☐ Competitors ☐ Friends & family ☐ Earth Day events
☐ Other _____

16. The following are some scenarios of how recyclable materials can be collected. Identify which scenario best fits your program.

_____ Employee collects own recyclable materials and brings them home or to a recycling center.

_____ Employees collect recyclable materials at workstation and then transport them to a central collection area located within the tenant's leased property. Another employee brings them home or to a recycling center.

_____ Employees collect recyclable materials at workstation and then transport them to a central collection area located within the tenant's leased property. Recycling hauler collects all recyclables individually from each tenant.

_____ Employees collect recyclable materials at workstation and janitorial service transports them to a central collection area located within the tenant's leased property. Recycling hauler collects all recyclables individually from each tenant.

_____ Employees collect recyclable materials at workstation and janitorial service transports them to a single central collection area outside of the tenant's leased property but within the building property. Recycling hauler picks up recyclables from single central location.

_____ Other _____

17. On a scale of 1 to 10, how would you rank your knowledge of products made from recycled materials (e.g. where to buy them, how they compare to products made with new materials, comparisons on quality, price and availability)?

Little to No
Knowledge

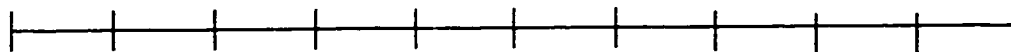
Moderate
Knowledge

A Lot of
Knowledge

0

5

10



17a. On a scale of 1 to 10, how would you rank your company's level of active participation in buying products made with recycled materials?

Little to No
Activity

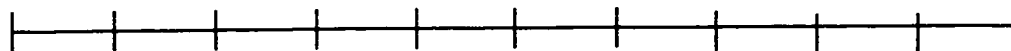
Moderate
Activity

A Lot of
Activity

0

5

10



17b. Does the your company purchase any recycled content products? ____ (Y) ____ (N)

**** If YES, Skip to 18 ****

17a. Have employees/tenants asked for recycled content products? ____ (Y) ____ (N)

If yes, how many (in percentages)?

_____ Few (20% or less)

_____ A Lot (more than 50%)

_____ Many (20% to 50%)

**** Go to Part B ****

18. Who initiated buy-recycled program?

____ Top Manager/Owner

____ Non-management personnel

____ Purchasing Officer

____ Don't know.

18a. Why was buy-recycled program started?

____ Right thing to do

____ Reduce operating costs

____ Competitors do it

____ Other _____

18c. What recycled-content products are purchased?

____ white paper % _____

____ manila folders % _____

____ colored paper % _____

____ hanging folders % _____

____ toner cartridges % _____

____ packing material % _____

____ Bathroom/Kitchen % _____

____ other % _____

supplies

(For example, all or 100% of the white paper your company purchases is recycled paper.)

19. Does the janitorial service provide recycled products for your use?

____ (Y) ____ (N) ____ Don't Know

***** If NO or Don't Know, skip to 20 *****

19a. What recycled products are provided?

____ Bathroom supplies

____ Other _____

____ Kitchen/cafeteria supplies

20. Does the property manager provide recycled products for your use?

____ (Y) ____ (N) ____ Don't Know

***** If NO or Don't Know, go to Part B *****

20a. What recycled products are provided?

____ Bathroom supplies

____ Other _____

____ Kitchen/cafeteria supplies

21. Would your company be interested in participating in a cooperative to buy-recycled content products?

____ (Y) ____ (N)

***** Continue to Part B *****

Part B: Interview Questions

1. As you see it, how does a company benefit by using sound environmental practices? What are the disadvantages?

2. If you are recycling and buying recycled products, describe the steps you took to initiate the programs? Who and what influenced you to start these programs?

3. If you **do not have a recycling or buy-recycled products program** in place, under what circumstances would you recycle or buy-recycled products?
4. If you **do not have a recycling or buy-recycled products program** in place, under what circumstances would you not recycle and buy-recycled products?
5. If you **have a recycling program** in place, what changes/enhancements to the program would like to implement, and why?
6. If you **have a buy-recycled products program** in place, what changes/enhancements would you implement, and why?
7. If you **belong to a business or trade organization**, how does it impact your environmental business practices and attitudes towards environmental issues?
8. Everyone today is concerned about reducing costs wherever possible. If you **do not belong to a business or trade organization**, where do you go to find information pertinent to your business operations, particularly issues regarding office management?
9. Describe any previous experiences with recycling and recycled products.
10. Describe your relationship with your (Other SB/JS/RH).
11. What role should city government play with respect to promoting commercial recycling and buy-recycled programs?
12. Describe the media format which have had the most influence on you? (e.g. TV ads, radio ads, unsolicited information packets from the City of San Jose, etc.)
13. Based on everything you've just told me, what do you think is your company's position on environmental issues and how important are they?
15. If you were in my place, what questions would you ask about recycling and buying recycled products? What have I not covered?

School of Social Science * Department of Environmental Studies
One Washington Square * San Jose, California 95192

PROPERTY MANAGER INTERVIEW

Principal Investigator: Mellicent deJesus Fraticelli, MS

Title: "Barriers to Small Business Recycling and Buy-Recycled Programs in a Multi-tenant Building"

My name is Mellicent deJesus Fraticelli and I am a graduate student at San Jose State University. I am conducting research regarding small business recycling and buy-recycled programs in a multi-tenant building. The survey is intended to assess the views of business owners, property managers, janitorial service managers, and recycling hauler managers concerning their company's attitudes and opinions regarding recycling and recycled-content products. The findings of this and subsequent analyses will contribute to the understanding of business recycling and buy-recycled products programs.

Your company was randomly selected from the list of all businesses operating in the City of San Jose. Would you consent to participate in this study? The survey should take approximately 10 minutes to complete. Be assured that all individual responses will be kept strictly confidential. All data will be key-punched for statistical analysis by research staff and respondents will not be identified individually when the results are reported. The emphasis of this research is on group profiles rather than on individual responses. If there is any questions that does not apply to your situation, or are unable or don't want to answer, just skip the question and continue on to the next question.

1. The data collected will provide greater understanding of small business recycling and buy-recycled products programs.
2. You understand that the results of the study may be published but that no real names will be used or any information that may identify you may be used.
3. Should there be any questions about the study or should you have any complaints, you may call Dr. Anne Lawrence at 408-924-3586 Graduate Advisor or Dr. Les Rowntree at 408-924-5487 Environmental Studies Department Chair. Questions or complaints about research, subject's rights, or research related injury may be presented to Dr. Serena Stanford, Associate Academic Vice President for Graduate Studies and Research at 408-924-2480.
4. This consent is given voluntarily. You understand that you may refuse to participate at any time and am free to withdraw from the study at any time without prejudice to your relations with San Jose State University or any participating institution.

I will contact you in one week by phone to determine your participatory status.

Subject's Name or Initials and Title

Date

There are two parts to the survey. Part A focuses on demographical information. Part B focuses on your company's position on recycling and recycled-content products.

Part A: Demographical Questions

4. Number of employees: _____ 4a. Age of Company: _____ yrs

5. What is employee turnover rate?
 _____ (low - 5 or more yrs) _____ (med - 2 to 5 yrs)
 _____ (high - less than 1 yr)

6. What percentage of employees are _____ (Female) _____ (Male)?

7. Is the owner/highest level manager _____ (Female) or _____ (Male)?

8. Identify the number of buildings you manage which are:
 _____ Less than 5,000 sq ft _____ Between 100,001 and 500,000 sq ft
 _____ Between 5,000 and 10,000 sq ft _____ Greater than 500,000 sq ft
 _____ Between 10,001 and 100,000 sq ft

9. Are tenants responsible for their own waste hauling or is it included in the lease?
 _____ (Own) _____ (Lease) _____ (Both)

***** If lease, skip to 10. If own, continue to 9a *****

9a. Do your leases include a "pass-through clause" stating that the utility, water and garbage charges incurred by tenants above some predetermined amount will be "passed on" to the tenants?
 _____ (Y) _____ (N)

10. Do you contract with single waste hauler for all properties? _____ (Y) _____ (N)

10a. Please identify hauler(s). _____

11. What is the average cost of your waste service in cu yd/month for the different size of buildings that you manage?

_____ Less than 5,000 sq ft
 _____ Between 5,000 and 10,000 sq ft
 _____ Between 10,001 and 100,000 sq ft
 _____ Between 100,001 and 500,000 sq ft
 _____ Greater than 500,000 sq ft

12. What types of waste are generated by your tenants and what percent does each type represent?

_____ toner cartridges	_____ %	_____ aluminum	_____ %
_____ mixed computer paper	_____ %	_____ glass bottles	_____ %
_____ cardboard	_____ %	_____ newspapers	_____ %
_____ packing material (peanuts)	_____ %	_____ white paper	_____ %
_____ other	_____ %	_____ Don't Know	

(For example, white paper may represent 60% of the waste generated by your tenants, while cardboard represents 30%, aluminum represents 5% and packing material the other 5%.)

12a. Would you like an audit of the waste generated on your properties?
____ (Y) ____ (N)

13. Do you belong to a trade or business organization? ____ (Y) ____ (N)

**** If NO, go to 14; if YES, go to 13a ****

13a. If yes, to which organization(s) do you belong? _____

13b. What types of services do they provide?

____ Financial Advise	____ Mentoring
____ Market Info	____ Legal Advise (Laws/Regulations)
____ Competitive Information	____ Contacts/Networking
____ Technical Info	____ Other _____

14. Are there building-wide recycling programs in any of the buildings you manage?
____ (Y) ____ (N) ____ Don't know

***** If yes, skip to 15. If no, continue to 14a. *****

14a. Have tenants asked for a recycling program? ____ (Y) ____ (N)
____ Few (20% or less) ____ Many (20% to 50%) ____ A Lot (more than 50%)

***** Go to 18 *****

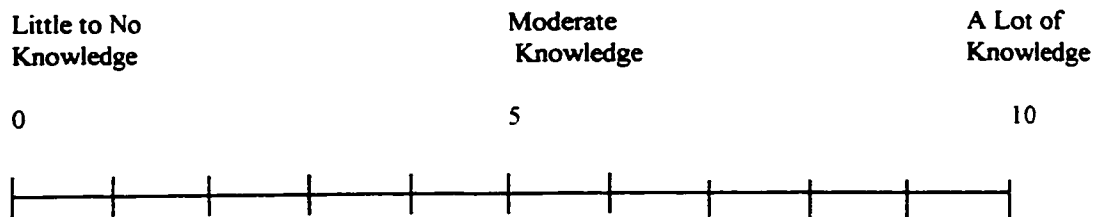
15. Does your company receive any benefits from the buildings with a recycling program?
____ (Y) ____ (N)

15a. Why were recycling program started?

____ Employees started programs	____ Tenants started programs
____ Right thing to do	____ Reduce operating costs
____ Competitors do it	____ Other _____

15b. What is the title of the person responsible for the recycling program? _____
Do they have full management support? ____ (Y) ____ (N)

15c. On a scale of 1 to 10, how would you rank your company's level of awareness and knowledge on the topic of garbage, landfills, recycling, and so forth?



15d. On a scale of 1 to 10, how would you rank your company's level of active participation in recycling related activities?

Little to No Activity	Moderate Activity	A Lot of Activity
0	5	10

15e. Regarding your level of awareness and knowledge on recycling, where do you get your information and exposure; what are your sources?

<input type="checkbox"/> City provided literature	<input type="checkbox"/> Colleagues/Trade Journals	<input type="checkbox"/> Media ads
<input type="checkbox"/> Competitors	<input type="checkbox"/> Friends & family	<input type="checkbox"/> Earth Day events
<input type="checkbox"/> Other _____		

16. Are recycling programs done collectively by all tenants or by each individual business?
☐ Collectively ☐ Individual ☐ Both

***** If done collectively, continue to 16a. If done individually, go to 18 *****

16a. Name of recycling hauler(s) where recycling is done collectively _____

16b. What percentage of all tenants recycle? ☐ % ☐ Don't know

16c. When recycling program(s) started, who helped to educate your tenants?

<input type="checkbox"/> Recycler/Hauler	<input type="checkbox"/> City provided materials	<input type="checkbox"/> Tenant meetings
<input type="checkbox"/> Own materials	<input type="checkbox"/> Business/trade organization	<input type="checkbox"/> No Info, just did it
<input type="checkbox"/> Other _____		

16d. What items are recycled?

<input type="checkbox"/> toner cartridges	<input type="checkbox"/> %	<input type="checkbox"/> aluminum	<input type="checkbox"/> %
<input type="checkbox"/> mixed computer paper	<input type="checkbox"/> %	<input type="checkbox"/> glass bottles	<input type="checkbox"/> %
<input type="checkbox"/> cardboard	<input type="checkbox"/> %	<input type="checkbox"/> newspapers	<input type="checkbox"/> %
<input type="checkbox"/> packing material (peanuts)	<input type="checkbox"/> %	<input type="checkbox"/> white paper	<input type="checkbox"/> %
<input type="checkbox"/> other	<input type="checkbox"/> %		

(For example, white paper may represent 50% of the materials recycled by your tenants, while cardboard represents 40%, aluminum represents 5% and packing material the other 5%.)

16e. Is there any promotional, educational, or incentive program in place?
☐ (Y) ☐ (N) ☐ Don't know

***** If NO, skip to 16f *****

If yes, what programs are available?

<input type="checkbox"/> Newletters	<input type="checkbox"/> Giveaways (mugs, T-shirts)	<input type="checkbox"/> Gift Certificates
<input type="checkbox"/> Bulletins	<input type="checkbox"/> Monetary incentives	
<input type="checkbox"/> Other _____		

16f. What is the title of the individual responsible for the recycling program? _____

Do they have full management support? ____ (Y) ____ (N)

16g. The following are scenarios of how recyclable materials can be collected. Identify all scenario best fits your program(s).

_____ Tenants collect recyclables at their workstation while another employee brings them home or to a recycling center.

_____ Tenants collect at workstation and then transport them to a central collection area located within the tenant's leased property. Recycling hauler collects all recyclables individually from each tenant.

_____ Tenants collect at workstation and janitorial service transports them to a central collection area located within the tenant's leased property. Recycling hauler collects all recyclables individually from each tenant.

_____ Tenants collect at workstation and janitorial service transports them to a single central collection area outside of the tenant's leased property but within the building property. Recycling hauler picks up recyclables from single central location.

_____ Other _____

18 Do you include recycling or waste reduction information in new tenant orientations: ____ (Y) ____ (N)

18a. Do you provide any incentive for your tenants to recycle or reduce their waste? ____ (Y) ____ (N)

***** If NO, skip to 19 *****

18b. Describe the incentive you provide. _____

19. On a scale of 1 to 10, how would you rank your knowledge of products made from recycled materials (e.g. where to buy them, how they compare to products made with new materials, comparisons on quality, price and availability)?

Little to No
Knowledge

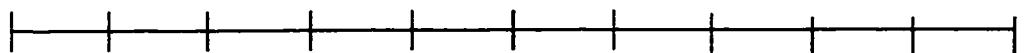
Moderate
Knowledge

A Lot of
Knowledge

0

5

10



19a. On a scale of 1 to 10, how would you rank your level of active participation in buying products made with recycled materials?

Little to No
Activity

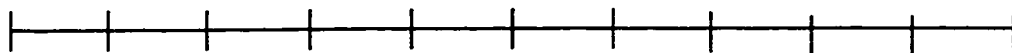
Moderate
Activity

A Lot of
Activity

0

5

10



19b. Does your company purchase recycled content products for your own use?
____ (Y) ____ (N)

***** If YES, skip to 20 *****

19c. Have employees asked for recycled content products? ____ (Y) ____ (N)
If yes, how many (in percentages)?
____ Few (20% or less) ____ A Lot (more than 50%)
____ Many (20% to 50%)

**** Go to 21 ****

20. Why was buy-recycled program started?
____ Right thing to do ____ Reduce operating costs
____ Competitors do it ____ Other _____

20a. Who initiated buy-recycled program?
____ Upper Manager/Owner ____ Non-management personnel
____ Purchasing Officer ____ Don't know

20b. What is their title of the individual responsible for the buy-recycled program? _____
Do they have upper management support? ____ (Y) ____ (N)

20b. What recycled-content products are purchased?
____ white paper % _____ ____ manila folders % _____
____ colored paper % _____ ____ hanging folders % _____
____ toner cartridges % _____ ____ packing material % _____
____ Bathroom/Kitchen % _____ _____ other % _____
supplies

21. Does your company purchase products made from recycled materials for your tenants?
____ (Y) ____ (N)

***** If NO, go to 22 *****

21a. What recycled-content products are purchased for your tenants?
____ white paper ____ manila folders
____ colored paper ____ hanging folders
____ toner cartridges ____ packing material
____ Bathroom/Kitchen _____ other
supplies

22. Would your company be interested in participating in a cooperative to buy-recycled content products?
____ (Y) ____ (N)

***** Continue to Part B *****

Part B: Interview Questions

1. As you see it, how does a company benefit by using sound environmental practices? What are the disadvantages?
2. If you **are recycling and buying recycled products**, describe the steps you took to initiate the programs? Who and what influenced you to start these programs?
3. If you **do not have a recycling or buy-recycled products program** in place, under what circumstances would you recycle or buy-recycled products?
4. If you **do not have a recycling or buy-recycled products program** in place, under what circumstances would you not recycle and buy-recycled products?
5. If you **have a recycling program** in place, what changes/enhancements to the program would like to implement, and why?
6. If you **have a buy-recycled products program** in place, what changes/enhancements would you implement, and why?
7. If you **belong to a business or trade organization**, how does it impact your environmental business practices and attitudes towards environmental issues?
8. Everyone today is concerned about reducing costs wherever possible. If you **do not belong to a business or trade organization**, where do you go to find information pertinent to your business operations, particularly issues regarding office management?
9. Describe any previous experiences with recycling and recycled products
10. Describe your relationship with your (Other PM/JS/RH).
11. What role should city government play with respect to promoting commercial recycling and buy-recycled programs?
12. Describe the media format which have had the most influence on you? (e.g. TV ads, radio ads, unsolicited information packets from the City of San Jose, etc.)
13. Based on everything you've just told me, what do you think is your company's position on environmental issues and how important are they?
15. If you were in my place, what questions would you ask about recycling and buying recycled products? What have I not covered?

School of Social Science * Department of Environmental Studies
One Washington Square * San Jose, California 95192

JANITORIAL SERVICE AND RECYCLING HAULER INTERVIEW

Principal Investigator: Mellicent deJesus Fraticelli, MS

Title: "Barriers to Small Business Recycling and Buy-Recycled Programs in a Multi-tenant Building"

My name is Mellicent deJesus Fraticelli and I am a graduate student at San Jose State University. I am conducting research regarding small business recycling and buy-recycled programs in a multi-tenant building. The survey is intended to assess the views of business owners, property managers, janitorial service managers, and recycling hauler managers concerning their company's attitudes and opinions regarding recycling and recycled-content products. The findings of this and subsequent analyses will contribute to the understanding of business recycling and buy-recycled products programs.

You company was randomly selected from the list of all businesses operating in the City of San Jose. Would you consent to participate in this study? The survey should take approximately 10 minutes to complete. Be assured that all individual responses will be kept strictly confidential. All data will be key-punched for statistical analysis by research staff and respondents will not be identified individually when the results are reported. The emphasis of this research is on group profiles rather than on individual responses. If there is any questions that does not apply to your situation, or are unable or don't want to answer, just skip the question and continue on to the next question.

1. The data collected will provide greater understanding of small business recycling and buy-recycled products programs.
2. You understand that the results of the study may be published but that no real names will be used or any information that may identify you may be used.
3. Should there be any questions about the study or should you have any complaints, you may call Dr. Anne Lawrence at 408-924-3586 Graduate Advisor or Dr. Les Rowntree at 408-924-5487 Environmental Studies Department Chair. Questions or complaints about research, subject's rights, or research related injury may be presented to Dr. Serena Stanford, Associate Academic Vice President for Graduate Studies and Research at 408-924-2480.
4. This consent is given voluntarily. You understand that you may refuse to participate at any time and am free to withdraw from the study at any time without prejudice to your relations with San Jose State University or any participating institution.

I will contact you in one week by phone to determine your participatory status.

Subject's Name or Initials and Title

Date

There are two parts to the survey. Part A focuses on demographical information. Part B focuses on your company's position on recycling and recycled-content products.

Part A: Demographical Questions

Instructions: Both questions apply to all Both subgroups: Janitorial Service (JS) and Recycling Hauler (RH)

Both Subgroups:

1 Number of employees: _____ 1a. Age of Company: _____ yrs

2 What is employee turnover rate?

_____ (low - 5 or more yrs)

_____ (med - 2 to 5 yrs)

_____ (high - less than 1 yr)

JS Only:

5 In buildings with multiple tenants, can you tell me who are the waste hauler(s)?

6. What types of waste are typically generated by your clients at multi-tenant buildings?

_____ toner cartridges	_____ %	_____ aluminum	_____ %
_____ mixed computer paper	_____ %	_____ glass bottles	_____ %
_____ cardboard	_____ %	_____ newspapers	_____ %
_____ packing material (peanuts)	_____ %	_____ white paper	_____ %
_____ other	_____ %	_____ Don't know	

(For example, white paper may represent 60% of the waste generated by your clients, while cardboard represents 30%, aluminum represents 5% and packing material the other 5%.)

6a Have you performed a waste audit for your clients? _____ (Y) _____ (N)

Both Subgroups:

7 Do you belong to a trade or business organization? _____ (Y) _____ (N)

**** If NO, JS go to 8 and RH go to 17. If YES, continue on 7a ****

7a. If yes, to which organization(s) do you belong? _____

7c. What types of services do they provide?

_____ Financial Advise	_____ Mentoring
_____ Market Info	_____ Legal Advise (Laws/Regulations)
_____ Competitive Information	_____ Contacts/Networking
_____ Technical Info	_____ Other _____

***** JS Only — RH go to 17 *****

8. In buildings with multiple tenants, do you normally contract with individual businesses or the property manager?

_____ Individual business

_____ Property Manager

8a. Do you normally provide janitorial services to all tenants in the buildings or just a few?
____ All tenants ____ Few businesses in the building

8b. Do you have clients with 100 or less employees? ____ (Y) ____ (N)

8c. Do you provide recycling collection services to your clients? ____ (Y) ____ (N)

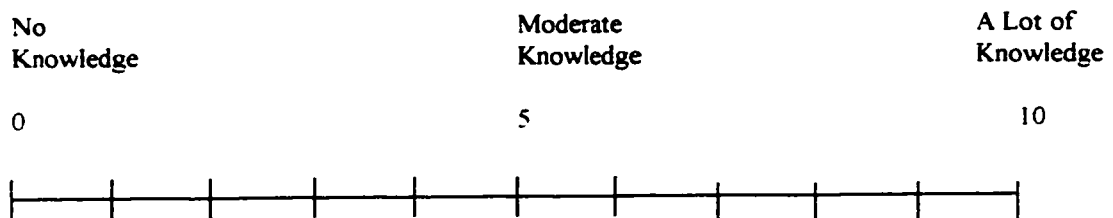
8d. If yes, please describe your service? _____

9. Does your company receive any economic benefits from providing recycling collection services?
____ (Y) ____ (N) ____ Part of Contract

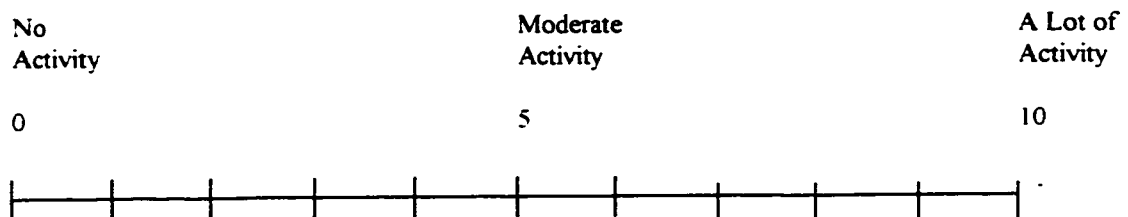
9a. Why are you providing this service?

____ Right thing to do ____ Employees wanted it
____ Tenants wanted it ____ Property Manager wanted it
____ Competition ____ Other _____

9b. On a scale of 1 to 10, how would you rank your level of awareness and knowledge on the topic of garbage, landfills, recycling, and so forth?



9c. On a scale of 1 to 10, how would you rank your level of active participation in recycling related activities?



9d. Regarding your level of awareness and knowledge on recycling, where do you get your information and exposure; what are your sources?

____ City provided literature ____ Colleagues/Trade Journals ____ Media ads
____ Competitors ____ Friends & family ____ Earth Day events
____ Other _____

9f. Are recycling bins usually locked?

____ Never locked ____ About 50% locked ____ More than 50% are locked

10. Below is a list of items, can you identify how many of your clients recycle the following items?

<input type="checkbox"/> toner cartridges	<input type="checkbox"/> %	<input type="checkbox"/> aluminum	<input type="checkbox"/> %
<input type="checkbox"/> mixed computer paper	<input type="checkbox"/> %	<input type="checkbox"/> glass bottles	<input type="checkbox"/> %
<input type="checkbox"/> cardboard	<input type="checkbox"/> %	<input type="checkbox"/> newspapers	<input type="checkbox"/> %
<input type="checkbox"/> packing material (peanuts)	<input type="checkbox"/> %	<input type="checkbox"/> white paper	<input type="checkbox"/> %
<input type="checkbox"/> other	<input type="checkbox"/> %		

(For example, white paper may represent 50% of the waste generated by your clients, while cardboard represents 40%, aluminum represents 5% and packing material the other 5%.)

10a. Are the following programs available to tenants?

☐ promotional ☐ educational ☐ incentive ☐ Don't know

10b. If yes, to 10a what programs are available?

<input type="checkbox"/> Newsletters	<input type="checkbox"/> Giveaways (mugs, T-shirts)	<input type="checkbox"/> Gift Certificates
<input type="checkbox"/> Bulletins	<input type="checkbox"/> Monetary incentives	<input type="checkbox"/> Recognition
<input type="checkbox"/> Other		

10c. Who manages the recycling program?

☐ Tenant ☐ Property Manager ☐ Our company

11. How are recyclable materials collected? For example, do you transport the materials from each business to a central collection area where the recycling hauler then picks up the materials? _____

12. Have businesses approached you requesting assistance in their recycling program? ☐ (Y) ☐ (N)

12a. Have property managers approached you requesting assistance in their recycling program?

☐ (Y) ☐ (N)

12b. Do you think that the janitorial service community can play an important role in recycling programs for multi-tenant buildings? ☐ (Y) ☐ (N)

13. Does your service contract include language about providing recycling collection services?

☐ (Y) ☐ (N)

13a. Do you help educate new tenants about the recycling program? ☐ (Y) ☐ (N)

14. On a scale of 1 to 10, how would you rank your company's knowledge of products made from recycled materials (e.g. where to buy them, how they compare to products made with new materials, comparisons on quality, price and availability)?

Little to No
Knowledge

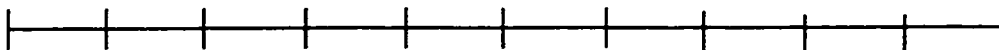
Moderate
Knowledge

A Lot of
Knowledge

0

5

10



14a. On a scale of 1 to 10, how would you rank your company's level of active participation in buying products made with recycled materials?

No Activity	Moderate Activity	A Lot of Activity
0	5	10



14b. Do you buy products made with recycled materials for the use of your clients? ____ (Y) ____ (N)

**** If YES, Skip to 15 ****

14c. Have any of your clients asked for recycled content products? ____ (Y) ____ (N)

If yes, how many (in percentages)?

____ Few (20% or less)	____ A Lot (more than 50%)
____ Many (20% to 50%)	

**** Go to Part B ****

15. What recycled-content products do you provide for your clients?

____ Bathroom supplies	____ Other _____
____ Kitchen/cafeteria supplies	_____

15b. Why do you provide recycled products?

____ Right thing to do	____ Reduce operating costs
____ Competitors do it	____ Other _____

***** JS go to Part B *****

RH Only:

17. Do you provide recycling services to small businesses? ____ (Y) ____ (N)

17a. Do you provide waste audits for small businesses? ____ (Y) ____ (N)

17b. Do you have personnel dedicated to help small businesses recycle? ____ (Y) ____ (N)

17c. Approximately how many small business recycling programs do you have?

____ Less than 10	____ Between 11 - 50	____ Between 50 - 200
____ Between 200 - 500	____ More than 500	

17d. What types of materials do you collect from small businesses and how much are collected?

____ toner cartridges	____ %	____ aluminum	____ %
____ mixed paper	____ %	____ glass bottles	____ %
____ cardboard	____ %	____ newspapers	____ %
____ packing material (peanuts)	____ %	____ white paper	____ %
____ other	____ %		

(For example, white paper may represent 50% of the waste generated by your clients, while cardboard represents 40%, aluminum represents 5% and packing material the other 5%.)

17e. Do you provide any promotional, educational, or incentive programs to small businesses, property managers and janitorial services?

____ (Y) ____ (N) ____ Don't know

***** If NO or Don't know, skip to 18 *****

17f. To solicit new clients, please rate the following items in terms of your success, 1 = most successful.

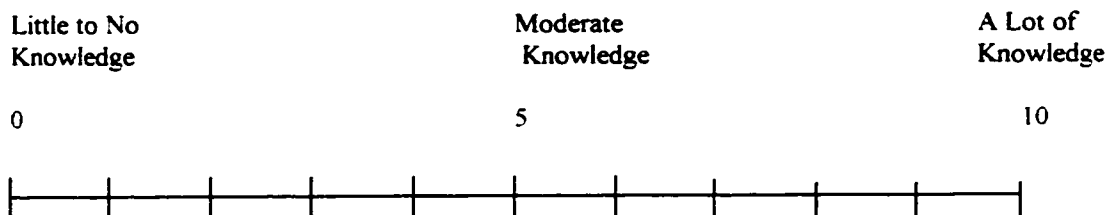
____ Cold calls or direct mail ____ Attending trade shows ____ Ad in phone book
____ Ads in newspapers, magazines, etc. ____ Attending community events.
____ Other _____

18. How are recyclable materials from businesses in multi-tenant buildings collected? _____

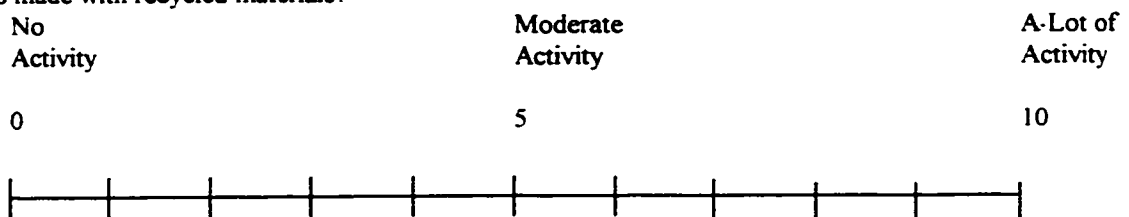
19. What type of recycling programs do you offer an individual small business?

____ White paper only ____ Glass Only ____ Mixed glass and plastic
____ All types of paper ____ #1 and #2 Plastic ____ Mixed paper, no envelopes
 Only
____ Packaging peanuts Only ____ Cardboard Only ____ Mixed paper and Mixed glass and plastic
____ Clean-up days ____ Customized ____ Other _____

21. On a scale of 1 to 10, how would you rank your company's knowledge of products made from recycled materials (e.g. where to buy them, how they compare to products made with new materials, comparisons on quality, price and availability)?



21a. On a scale of 1 to 10, how would you rank your company's level of active participation in buying products made with recycled materials?



21b. Does the company purchase recycled content products for your own use? ____ (Y) ____ (N)

21c. What recycled-content products are purchased?

_____ white paper	% _____	_____ manila folders	% _____
_____ colored paper	% _____	_____ hanging folders	% _____
_____ toner cartridges	% _____	_____ packing material	% _____
_____ Bathroom/Kitchen	% _____	_____ other	% _____

supplies

(For example, 50% of the white paper your company purchases is made from recycled materials and the other 50% is made completely of virgin materials.)

***** RH go to Part B *****

Part B: Attitude and Opinion Survey Questions

Instructions: Unless otherwise indicated, questions apply to all Both subgroups: Janitorial Service (JS) and Recycling Hauler (RH).

1. As you see it, how does a company benefit by using sound environmental practices? What are the disadvantages?
2. **JS Only:** If you **do not provide recycling assistance** to your clients, under what conditions would you provide such a service?
3. **JS Only:** If you **do not provide recycled products** to your clients, under what conditions would you provide such products?
4. **RH Only:** Describe the ideal model of a small business recycling program in a multi-tenant building. Describe the worst case-scenario of a small business recycling program in a multi-tenant building.
5. If you **belong to a business or trade organization**, how does it impact your environmental business practices and attitudes towards environmental issues?
6. Everyone today is concerned about reducing costs wherever possible. If you **do not belong to a business or trade organization**, where do you go to find information pertinent to your business operations, particularly issues regarding office management?
7. Describe any previous experiences with recycling and recycled products.
8. Describe your relationship with your (SB, PM and JS or RH).
9. What role should city government play with respect to promoting commercial recycling and buy-recycled programs?
10. Describe the media format(s) which have had the most influence on you or your clients? (e.g. TV ads, radio ads, unsolicited information packets from the City of San Jose, etc.)
11. Based on everything you've just told me, what do you think is your company's position on environmental issues and how important are they?
12. If you were in my place, what questions would you ask about recycling and buying recycled products? What have I not covered?

APPENDIX C QUANTITATIVE DATA FROM STRUCTURED SURVEYS

Table C.1 Economic Cost/Benefit - All Groups

Question No.	Recycling Program								
B6.1	Initial hardware costs prevent us from starting up a recycling program.								
B6.3	The company cannot afford to train employees how to recycle.								
B6.4	Business in a multi-tenant building benefits from a centralized program.								
B6.5	Locked bins reduced contamination and theft of recyclable materials.								
B6.7	Monthly collection fee hinders a recycling program.								
B6.9	Additional janitorial time to collect recyclable material is minimal.								
B6.16	Lack of bin space hinders recycling programs.								
B11.6	Recycling haulers should pay customers for materials collected.								
B11.7	Recycling haulers should charge customers for their recycling services.								
% Response To 5-Point Likert Scale									
No.	Group	n	SA	A	N	D	SD	Mean	Calculated-F-value
B6.1	SB	51	6	29	29	24	11	3.059	3.333
	PM	26	11	11	7	38	31	3.654	
	JS	14	28	36	7	14	14	2.500	
	RH	12	8	8	33	8	42	1.879	
B6.3	SB	49	4	6	22	39	29	3.816	2.219
	PM	26	12	19	19	35	15	3.231	
	JS	12	17	17	33	17	17	3.000	
	RH	10	20	0	20	20	40	3.600	
B6.4	SB	48	36	38	12	8	6	1.388	2.036
	PM	26	46	27	15	4	8	1.520	
	JS	14	71	22	7	0	0	0.401	
	RH	12	76	8	8	0	8	1.538	
B6.7	SB	49	16	22	41	16	4	2.694	3.147
	PM	26	19	15	15	23	27	3.231	
	JS	12	33	33	33	0	0	2.000	
	RH	8	12	25	25	13	25	3.125	

Table C.1 Economic Cost/Benefit - All Groups (continued)

B6.9	SB	48	15	52	19	10	4	2.375	1.617
	PM	24	34	30	12	12	12	2.417	
	JS	13	23	23	0	15	39	3.231	
	RH	6	33	16	17	17	17	2.667	
B6.16	SB	50	10	26	14	38	10	3.100	0.755
	PM	26	15	40	15	15	15	2.769	
	JS	12	8	33	25	17	17	3.000	
	RH	8	25	25	38	0	12	2.500	
B11.6	SB	35	11	38	31	11	9	2.686	0.553
	PM	25	16	32	16	28	8	2.800	
	JS	11	9	64	18	0	9	2.364	
	RH	8	12	12	52	12	12	3.000	
F-critical=2.7, p=0.05 df=3,90 (SA=strongly agree, A=agree, N=neither, D=disagree, SD=strongly disagree)									

Table C.2 Economic Cost/Benefit - Questions For Small Business and Property Manager

<u>Question No.</u>	<u>Recycling Program</u>								
B11.11	Businesses should be charged disposal rates based upon their volume.								
	<u>Buy-Recycled Products Program</u>								
B7.1	If two products have the same quality, my company will purchase the least expensive product.								
<u>% Response To 5-Point Likert Scale</u>									
<u>No.</u>	<u>Group</u>	<u>n</u>	<u>SA</u>	<u>A</u>	<u>N</u>	<u>D</u>	<u>SD</u>	<u>Mean</u>	<u>Calculated F-value</u>
B11.11	SB	35	31	46	17	3	3	2.000	0.041
	PM	19	26	48	21	5	0	2.053	
B7.1	SB	50	38	28	12	2	0	1.780	1.035
	PM	24	42	29	21	4	4	2.000	
F-critical=4.0, p=0.05, df=1,60 (SA=strongly agree, A=agree, N=neither, D=disagree, SD=strongly disagree)									

Table C.3 Knowledge or Technical Expertise - Small Business and Property Manager

<u>Question No.</u>			<u>Question</u>						
			<u>Buy-Recycled Products Program</u>						
B7.6			Buying recycled products is important because it is part of the recycling loop.						
			<u>% Response To 5-Point Likert Scale</u>						
<u>No.</u>	<u>Group</u>	<u>n</u>	<u>SA</u>	<u>A</u>	<u>N</u>	<u>D</u>	<u>SD</u>	<u>Mean</u>	<u>Calculated F-value</u>
B7.6	SB	50	42	54	4	0	0	1.620	2.343
	PM	24	37	42	17	4	0	1.875	
F-critical=3.970, p=0.05, df=3,95 (SA=strongly agree, A=agree, N=neither, D=disagree, SD=strongly disagree)									

Table C.4 Perceived Convenience - Questions For Small Business and Property Manager

<u>Question No.</u>		<u>Recycling Program</u>							
B6.17		Collecting mixed materials (e.g., mixed paper) makes it easier for small businesses to recycle.							
B12.4		Distance between the work areas and the recycling bins.							
<u>% Response To 5-Point Likert Scale</u>									
<u>No.</u>	<u>Group</u>	<u>n</u>	<u>SA</u>	<u>A</u>	<u>N</u>	<u>D</u>	<u>SD</u>	<u>Mean</u>	<u>Calculated F-value</u>
B6.17	SB	33	30	58	9	3	0	1.848	0.1680
	PM	16	50	31	12	6	0	1.750	
B12.4	SB	45	58	16	11	7	9	1.9333	5.955
	PM	26	31	8	35	8	19	2.769	
F-critical=3.98, p=0.05, df=1,69 (SA=strongly agree, A=agree, N=neither, D=disagree, SD=strongly disagree)									

Table C.5 Knowledge or Technical Expertise - Questions For Small Business, Property Manager and Janitorial Service Manager

<u>Question No.</u>		<u>Buy-Recycled Products Program</u>								
B7.2	More information about where to buy-recycled products should be made available.									
B7.4	Products made from recycled materials have a higher quality than those made from new materials.									
		<u>Recycling and Buying Recycled Products Programs</u>								
B11.1	Business or trade associations have helped my business.									
B11.5	The activities of our competitors play an important role in our business activities.									
<u>% Response To 5-Point Likert Scale</u>										
<u>No.</u>	<u>Group</u>	<u>n</u>	<u>SA</u>	<u>A</u>	<u>N</u>	<u>D</u>	<u>SD</u>	<u>Mean</u>	<u>Calculated F-value</u>	
B7.2	SB	50	32	50	18	0	0	1.860	1.242	
	PM	24	46	33	17	4	0	1.792		
	JS	13	31	38	15	8	8	2.231		
B7.4	SB	50	0	0	76	20	4	3.280	1.261	
	PM	23	0	4	52	35	9	3.478		
	JS	11	0	9	36	46	9	3.545		
B11.1	SB	43	12	35	33	18	2	2.651	3.965	
	PM	23	48	13	17	9	13	2.261		
	JS	11	0	9	55	18	18	3.454		
B11.5	SB	49	16	31	31	14	8	2.673	0.441	
	PM	25	28	32	16	12	12	2.480		
	JS	12	42	17	17	17	8	2.333		
F-critical=3.106, p=0.05, df=2,83 (SA=strongly agree, A=agree, N=neither, D=disagree, SD=strongly disagree)										

Table C.6 Minimal Impact - Question For Small Business and Property Manager

<u>Question No.</u>	<u>Topic of Question</u>								
	<i>Recycling Program</i>								
B6.19	The recycling focus should be towards large businesses and governments because they generate more waste.								
<u>% Response To 5-Point Likert Scale</u>									
<u>No.</u>	<u>Group</u>	<u>n</u>	<u>SA</u>	<u>A</u>	<u>N</u>	<u>D</u>	<u>SD</u>	<u>Mean</u>	<u>Calculated F-value</u>
B6.19	SB	50	4	32	12	30	22	3.340	0.367
	PM	26	15	15	8	23	39	3.538	
F-critical=3.97, p=0.05, df=1,74 (SA=strongly agree, A=agree, N=neither, D=disagree, SD=strongly disagree)									

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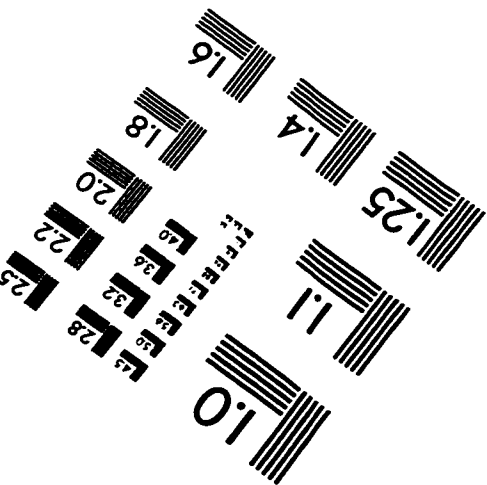
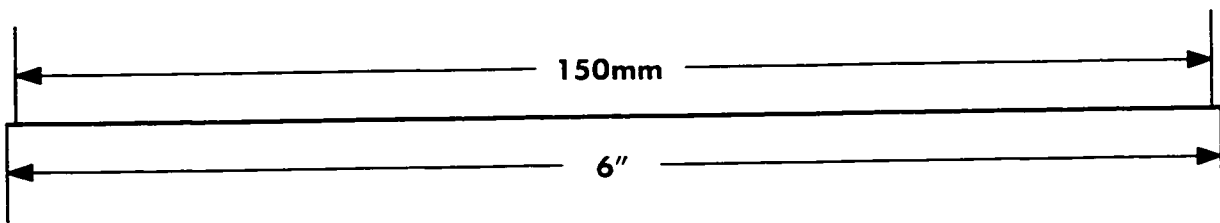
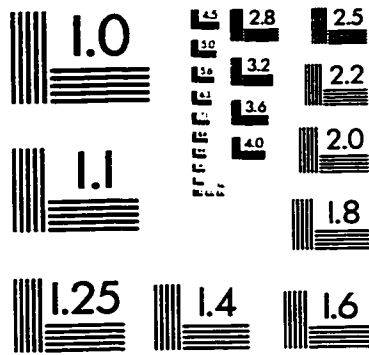
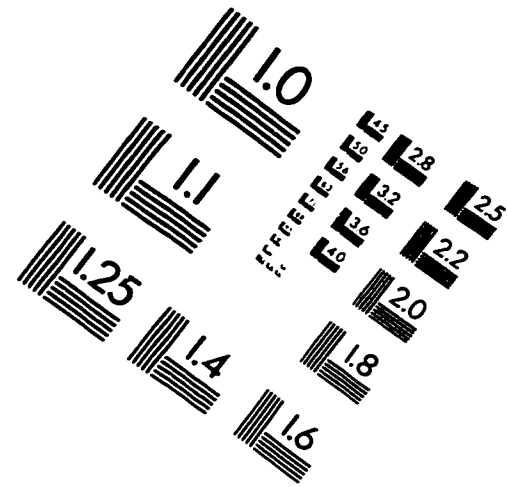
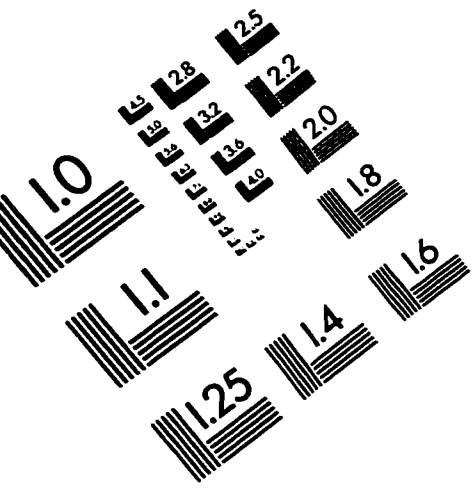
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IMAGE EVALUATION TEST TARGET (QA-3)



APPLIED IMAGE, Inc
1653 East Main Street
Rochester, NY 14609 USA
Phone: 716/482-0300
Fax: 716/288-5989

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